WO0174062

Publication Title:

USER INTERFACE WITH MEDIA BAR

Abstract:

Abstract of WO0174062

A media bar providing a unified mechanism for user-friendly integrated access to various types (video, audio, and text) of digital multimedia content corresponding to captioned subject matters. In accordance with an embodiment, a user interface to an Internet (102) enabled television system includes such a media bar. The media bar may operate in conjunction with an embedded and/or a pop-up media viewer. The media viewer may provide access to streaming digital video sources (118) and/or streaming digital audio sources. The media bar may also operate in conjunction with a text viewer for presenting text content.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
4 October 2001 (04.10.2001)

PCT

(10) International Publication Number
WO 01/74062 A1

(51) International Patent Classification[7]: H04N 5/445, G06F 3/00, 13/00

(21) International Application Number: PCT/US01/09223

(22) International Filing Date: 21 March 2001 (21.03.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/193,046	29 March 2000 (29.03.2000)	US
09/591,547	8 June 2000 (08.06.2000)	US
60/213,811	22 June 2000 (22.06.2000)	US
09/613,445	11 July 2000 (11.07.2000)	US

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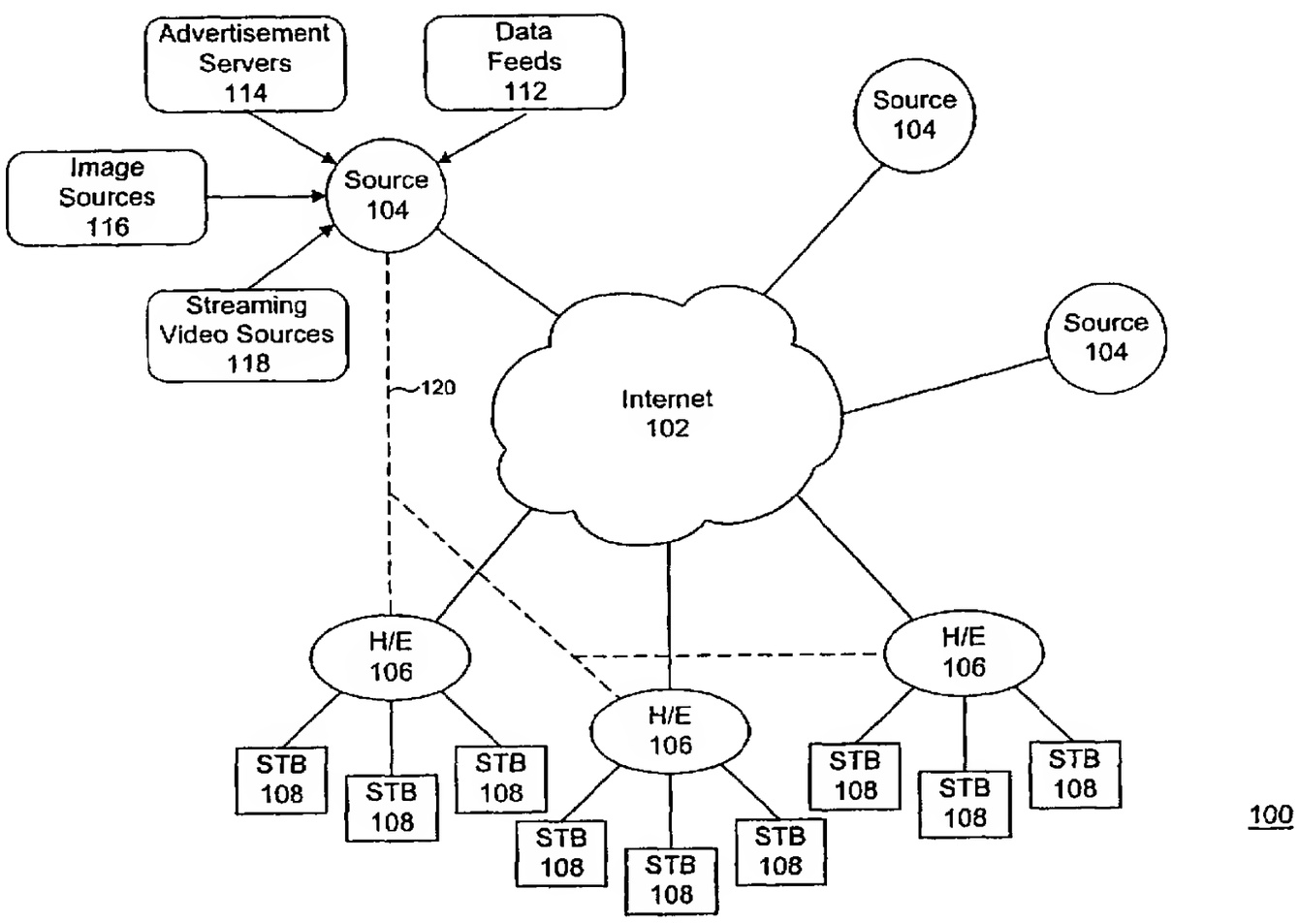
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: USER INTERFACE WITH MEDIA BAR



(57) Abstract: A media bar providing a unified mechanism for user-friendly integrated access to various types (video, audio, and text) of digital multimedia content corresponding to captioned subject matters. In accordance with an embodiment, a user interface to an Internet (102) enabled television system includes such a media bar. The media bar may operate in conjunction with an embedded and/or a pop-up media viewer. The media viewer may provide access to streaming digital video sources (118) and/or streaming digital audio sources. The media bar may also operate in conjunction with a text viewer for presenting text content.

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USER INTERFACE WITH MEDIA BAR

RELATED APPLICATIONS

The present application is related to and claims priority from provisional application U.S. Serial No. 60/193,046, entitled "User Interface for Interactive Television with Broadband Connectivity to the Internet," filed March 29, 2000, with inventor Anthony F. Istvan, which is hereby incorporated by reference in its entirety. The present application is also a continuation-in-part of nonprovisional application U.S. Serial No. 09/591,547, entitled "L Configured User Interface to Television and Internet Content," filed June 8, 2000, with inventors Anthony F. Istvan and Lisa M. Wilkins. The present application is related to and claims priority from provisional application U.S. Serial No. 60/213,811, entitled "User Interface for Interactive TV" filed June 22, 2000, with inventor Anthony F. Istvan, which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

The present application pertains to content distribution and access. More particularly, the present application pertains to distribution of and access to digital multimedia content.

BACKGROUND

Televisions and Internet technologies are beginning to converge. In particular, access to the World Wide Web via an Internet-enabled television system is progressing and becoming more popular. However, prior user interfaces for such systems are limited in their capabilities and do not provide a unified mechanism for integrated access to various types (video, audio, and text) of digital multimedia content.

U.S. Patent No. 6,034,689, entitled "Web Browser Allowing Navigation Between Hypertext Objects Using Remote Control," discloses browser software

implemented in a set-top box which allows a user to navigate using a remote control through World Wide Web pages. This browser software has limited capabilities and comprises a relatively simple user interface which allows for selection of hypertext anchors.

SUMMARY

The present invention relates to a media bar providing a unified mechanism for user-friendly integrated access to various types (video, audio, and text) of digital multimedia content corresponding to captioned subject matters. In accordance with an embodiment of the present invention, a user interface to an Internet-enabled television system includes such a media bar. The media bar may operate in conjunction with an embedded and/or a pop-up media viewer. The media viewer may provide access to streaming digital video content and/or streaming digital audio content. The media bar may also operate in conjunction with a text viewer for presenting text content.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram depicting a system 100 for distributing multimedia content to Internet-enabled televisions in accordance with an embodiment of the present invention.

Fig. 2 is an illustrative screen frame of a display with a full-size video being displayed.

Fig. 3 depicts an example layout 300 of a user interface (UI) which has been activated in accordance with an embodiment of the present invention.

Fig. 4 is an illustrative screen frame of a UI which has been activated in accordance with an embodiment of the present invention.

Fig. 5 depicts an example layout 500 of a UI with a user submenu activated in accordance with an embodiment of the present invention.

Fig. 6 depicts an example layout 600 of a UI with a TV submenu 602 activated in accordance with an embodiment of the present invention.

Fig. 7 depicts an example layout 700 of a UI with television listing controls in the context-sensitive area 304 in accordance with an embodiment of the present invention.

Fig. 8 is an illustrative screen frame of a UI in a TV listing mode which provides an electronic programming guide (EPG) in accordance with an embodiment of the present invention.

Fig. 9 depicts an example layout 900 of a UI with a browser submenu 902 activated in accordance with an embodiment of the present invention.

Fig. 10 depicts an example layout 1000 of a UI with browser controls in the context-sensitive area 304 in accordance with an embodiment of the present invention.

Fig. 11 is an illustrative design for a remote control 1100 in accordance with an embodiment of the present invention.

Fig. 12 depicts a user interface which includes a media bar and an embedded media viewer in accordance with an embodiment of the present invention.

Fig. 13 depicts a user interface which includes a media bar for use with pop-up media viewers in accordance with an embodiment of the present invention.

Fig. 14 depicts a pop-up media viewer overlayed over a screen in accordance with an embodiment of the present invention.

Fig. 15 depicts a pop-up text viewer overlayed over a screen in accordance with an embodiment of the present invention.

Fig. 16 depicts a media bar used to provide general news as part of a general news screen.

Fig. 17 depicts a media bar used to provide sports news as part of a sports news screen.

Fig. 18 depicts a media bar used to provide financial ("money") news screen.

Fig. 19 depicts a media bar used to provide entertainment news as part of an entertainment ("scene") news screen.

DESCRIPTION OF THE SPECIFIC EMBODIMENTS

Fig. 1 is a schematic diagram depicting a system 100 for distributing Internet content, in addition to TV content, in accordance with an embodiment of the present invention. In accordance with an embodiment of the present invention, the system 100 is integrated with a cable TV distribution system. Such cable TV distribution systems may include cable headends and are well known in the art.

The system 100 includes an Internet 102, a plurality of content sources 104, a plurality of distribution centers (depicted as headends or H/E) 106, and a plurality of client terminals (depicted as set top boxes or STB) 108. In addition, a content source 104 is depicted as receiving data from data feeds 112, advertisement servers 114, image sources 116, and streaming video sources 118.

The plurality of content sources 104 are coupled to the Internet 102. For example, a content source 104 may comprise a web site portal such as Go2Net.com, or a news web site such as CNN.com, or other types of sources. Each content source 104 may have various data feeds 112, servers 114, and sources 116/118 coupled to it.

For example, news or stock quote feeds 112 may be fed into the content source 104. Servers 114 may provide advertisements for insertion into multimedia content deliveredy by the content source 104. Sources 116/118 may provide images 116, streaming video 118, and other content to the content source 104. Various other feeds, servers and sources may also be coupled to the content source 104.

The Internet 102 comprises a network of networks and is well known in the art. Communications over the Internet 102 are accomplished using standard protocols such as TCP/IP (transmission control protocol/internet protocol) and other protocols. The Internet 102 is coupled to the plurality of distribution centers 106. For example, a distribution center 106 may comprise a cable headend (H/E).

Each distribution center 106 is coupled to a plurality of client terminals 108. For example, a client terminal 108 may comprise a set top box (STB), a personal computer, an interactive television set, or another type of communication device.

In alternative or in addition to the Internet 102 being used to distribute multimedia content from the content sources 104 to distribution centers 106, communications channels or networks 120 apart from the Internet 102 may couple one or more content source 104 to one or more distribution center 106. One example of such an alternate path for communications is illustrated in Fig. 1. Other configurations are also possible and meant to be included within the scope of the present invention.

Embodiments of the present invention may utilize other distribution or communications systems besides the one described above in relation to Fig. 1. Instead of a cable distribution system, other systems that may be used include telephone, ISDN, digital subscriber line (DSL), satellite, and other communications systems. The distribution or communications system may comprise a private network or a "walled garden" network.

Fig. 2 is an illustrative screen frame of a display with a full-size video being displayed. While the screen frame is a still frame, the actual video is a motion video comprising a multitude of frames in sequence.

Fig. 3 depicts an example layout 300 of a user interface (UI) which has been activated in accordance with an embodiment of the present invention. In one embodiment, when the UI is activated, the full-size display (see Fig. 2) shrinks in an "animated" fashion (i.e. with visible motion to a viewer) to occupy a reduced-size area 301 of the display. Alternatively, when the UI is activated, the L configured UI may be superimposed (overlayed) over the full-size display. For example, shrinking the full-size display may be used if the display is showing TV or video content, while superimposing over the full-size display may be used if the display is showing pages which do not scale well. A "menu" button on a remote control unit may be used to activate and deactivate the UI.

The UI includes a group of permanent or primary controls 302 on a first side of the reduced-size area 301, a context-sensitive area 304 on a second side of the reduced-size area 301 (perpendicular to the first side), and a logo area 306 at the

intersection of the two sides. In the example layout 300 shown in Fig. 3, the primary controls 302 include user ("user name"), TV, mail, browser, and help controls or control icons.

Selection of these primary control icons typically reveals a corresponding submenu. For purposes of illustration, described in detail below are a selection of such submenus. First, an example of a user submenu 502 is described below in relation to Fig. 5. Second, an example of the TV submenu 602 is described below in relation to Fig. 6. Third, an example of a browser submenu 902 is described below in relation to Fig. 9.

The context-sensitive area 304 may display different information (non-selectable items) and control icons (selectable items) depending upon the content in the display area 301. Initially, the context-sensitive area 304 may display information on the TV content currently being displayed in the display area 301. The information may include, for example, channel number/network call letters, program title, and current time.

As the content in the display area 301 varies, so will the information and control icons in the context-sensitive area 304. For example, first, when display area 301 contains TV content, then context-sensitive area 304 may have the information shown in Fig. 3. Second, when the display area 301 contains electronic programming guide (EPG) content, then context-sensitive area 304 may have the controls described in relation to Fig. 7. Third, when display area 301 contains web content, then context-sensitive area 304 may have the controls described in relation to Fig. 10.

The logo area 306 may display, for example, a logo and name for a service provider. In this example, the service provider is named Charter Communications™.

While the particular layout of Fig. 3 shows a "L" configured UI along the top and left sides of the display, other "L" configurations are also contemplated and within the scope of the present invention. For example, the "L" configured UI may instead be along the bottom and left sides, or the bottom and right sides, or the top and right sides.

In accordance with an embodiment of the present invention, a first pair of arrows on a remote control navigates among the primary controls, and a second pair of arrows (perpendicular to the first pair) navigates among the context-sensitive controls.

Switching between navigation among the primary controls and navigation among the context-sensitive controls occurs automatically upon switching between using the first pair of arrows and using the second pair of arrows. An example of a remote control with such arrows is shown in Fig. 11 which is described below.

Fig. 4 is an illustrative screen frame of a UI which has been activated in accordance with an embodiment of the present invention. The frame shown in Fig. 4 is an implementation in close (but not exact) correspondence to the layout 300 of Fig. 3. Like the layout 300 in Fig. 3, the UI of Fig. 4 has primary controls on the left side, a context-sensitive area on the top, and a service provider's logo at the upper left corner.

Regarding the primary controls, "Bob234" is an example name of a currently active user. The "Surf" control corresponds to the browser control. Regarding the context-sensitive area, "Conde Nast Traveler" corresponds to the program title. "Channel 31, DSC" corresponds to the channel/network call letters. And, finally, "1:02 pm 02/28/00" corresponds to the current time (and date).

Fig. 5 depicts an example layout 500 of an UI with a user submenu 502 activated in accordance with an embodiment of the present invention. The user submenu 502 is activated by selecting the "user name" on-screen control from the group of primary controls 302. The user submenu 502 may include various selections.

The "family" user is the default selection when the UI is activated. In one embodiment, the family user will be able to access only content which is accessible to all other users. In other words, the family user will have a "permission space" which is the intersection of permission spaces of all other users. Advantageously, this feature does not require a password to be entered upon turning on the TV. Nevertheless, this feature may be used to prevent children from accessing excessively violent or adult-oriented content. Moreover, the protection provided may extend to both TV and Internet content.

User #2, user #3, ..., user #N, may be individual user names, each of which may have a password to protect against entry by an unauthorized person. For example, the different users may correspond to members of a family. These user names may be sorted alphabetically in the user submenu 502. When an individual user name is selected and password, if any, entered correctly, then the user name becomes the active user.

The "manage users" and "settings" selections may be used to perform such function as: editing user name, password, and other user-related information for a specified user account; allowing users to block certain emails; allowing a user with administrative privileges to add or remove users and change user privileges; and so on.

Fig. 6 depicts an example layout 600 of a UI with a TV submenu 602 activated in accordance with an embodiment of the present invention. The TV submenu 602 is activated by selecting the "tv" on-screen control from the group of primary controls 302. The TV submenu 602 may include various selections.

The "listing" selection provides an electronic programming guide (EPG) to broadcast TV content. When the EPG is provide, corresponding controls are provided in the context-sensitive area 304 as described below in relation to Fig. 7. An example of such an EPG within the UI is illustrated in Fig. 8 which is also described below.

The "info" selection provides information relating to the TV program currently being viewed in the display area 301. The information may include a brief description of the program, names of actors/actresses, copyright year, and so on.

The TV "favorites" selection provides a user with a list of his/her favorite TV channels. When a TV channel is selected from the favorite list, then the embedded TV display changes to that channel.

The TV "recents" selection provides small screen video images of the last N (where N is a positive integer) TV channels viewed. For example, if N = 9, then video images of the 9 most recently viewed TV channels may be shown in a 3x3 matrix configuration in the embedded display 301. The number N may be fixed, or it may be user selectable.

The TV "search" selection provides a mechanism to search electronic program guide (EPG) listings for a particular program or programs. The search may be by program title, type of program (e.g., "basketball" may be searched to find basketball games being broadcast), by actor/actress, and so on.

These and other selections may be provided in the TV submenu 602. For example, "recent links" and "channel setup" selections are depicted in the TV submenu

602 of Fig. 6. The "recent links" selection provides access to hyperlinks recently received via a mechanism such as an ATVEF (Advanced TV Enhancement Forum) trigger. ATVEF is a cross-industry alliance of companies from broadcast and cable networks, television transport, consumer electronics, and personal computer industries. The "channel setup" selection allows a user to specify which TV channels are included as channels to tune to as part of the channel up/down tuning sequence.

Fig. 7 depicts an example layout 700 of a UI with television listing controls in the context-sensitive area 304 in accordance with an embodiment of the present invention. The television listing controls are provide when the display area 301 is used to provide an electronic programming guide (EPG).

The television listing controls shown in Fig. 7 include a "change day" control, an EPG "search" control, and a "stay on channel" control. The "change day" control allows the user to change the day of the program grid being shown by the EPG. The EPG "search" control provides access to a mechanism to search EPG listings for a particular program or programs. The "stay on channel" control comprises a toggle control to activate/deactivate this option. When the option is deactivated, then the TV tuner actively tunes to the selected channel in the program grid of the EPG. When the option is activated, then the TV tuner remains on the channel that was being displayed before entering the EPG.

Fig. 8 is an illustrative screen frame of a UI in a TV listing mode which provides an electronic programming guide (EPG) in accordance with an embodiment of the present invention. The frame shown in Fig. 8 is an implementation in close (but not exact) correspondence to the layout 700 of Fig. 7. (The frame of Fig. 8, for example, does not show a "stay on channel" toggle control.) The EPG shown provides a programming grid including rows representing different channels, and columns representing different timeslots. Other implementations of an EPG are also possible.

Fig. 9 depicts an example layout 900 of a UI with a browser submenu 902 activated in accordance with an embodiment of the present invention. The browser submenu 902 is activated by selecting the "browser" on-screen control from the group of primary controls 302. The browser submenu 902 may include various selections.

The "home" selection may provide access to a web page designated by a service provider (e.g., a MSO) as its "home" page. In one embodiment, when going to the home page, the L configured UI retracts, so that the home page is shown on a full-size screen.

The "user defined" selections provide access to specialized web pages which may be focused to various categories of content. For example, the specialized web pages may focus on categories such as news, money, sports, weather, entertainment, and others. Again, in one embodiment, when going to a specialized web page, the L configured UI retracts, so that the specialized page is shown on a full-size screen.

These and other selections may be provided in the browser submenu 902. For example, "more," "go to," browser "favorites," and browser "search" selections are depicted in the browser submenu 902 shown in Fig. 9. The "more" button provides access to other categories of content in addition to those specified by the "user defined" selections described above. The "go to" button provides a query text box which allows a user to specify a URL to be displayed in the browser. The browser "favorites" button provides access to an organized data structure of favorite links. These browser favorites may be provided separately from the TV favorites, or they may be provided together in an integrated data structure. The browser "search" control provides access to a mechanism to search for particular Internet or Web content. The browser search may be provided separately from the EPG search, or they may be provided together in an integrated search feature.

Fig. 10 depicts an example layout 1000 of a UI with browser controls in the context-sensitive area 304 in accordance with an embodiment of the present invention. The browser controls are provided when the display area 301 is used to access World Wide Web content and other similar hyperlinked content.

In the embodiment shown in Fig. 10, the left and right arrows 1002 may be individually selected. The left arrow scrolls or shifts the browser controls one button to the left. For example, in Fig. 10, the left arrow would cause the "home" button 1004 to scroll "behind" the arrows 1002 and a control button (not shown) to the right of the "reload" button 1014 to become visible at the right side of the context-sensitive area 304. Similarly, the right arrow scrolls or shifts the browser controls one button to the right.

In the embodiment shown in Fig. 10, the "home" button 1004 provides access to the web page designated by the user as his/her "home" page. The "faves" or favorites button 1006 provides access to a list of web pages or URLs that the user selects as his/her favorites. The "save" button 1008 enables a user to save a web page currently being displayed as a favorite page. The "go to" button 1010 provides a query text box which allows a user to specify a URL to be displayed in the browser. The "search" button 1012 provides access to a mechanism to search for particular Internet or Web content. The "reload" button 1014 causes the content currently in the display 301 to be refreshed.

Other buttons may be provided to the right of the "reload" button 1014. In one embodiment, the other buttons may include a "print" button, a "find" button, a "send" button, and an "info" button. The "print" button provides for printing, with various options, of the web page being displayed. The "find" button provides for finding a specified text string within the web page being displayed. The "send" button provides for sending an email with the web page being displayed or its URL attached thereto or contained therein. Finally, the "info" button provides additional information about the web page being displayed.

Fig. 11 is an illustrative design for a remote control 1100 in accordance with an embodiment of the present invention. Many other designs with similar functionality are, of course, possible and would be within the scope of the present invention.

The menu button 1102 may be used to activate and deactivate the UI as described above in relation to Fig. 3. The "Go To TV" button 1103 returns the display to a full-screen television display as illustrated by Fig. 2.

The up arrow 1108 and down arrow 1110 may be used to navigate among the primary controls 302. The left arrow 1104 and right arrow 1106 may be used to navigate among controls in the context-sensitive area 304. Switching between navigation among the primary controls and navigation among the context-sensitive controls occurs automatically upon switching between using the up/down arrows 1108/1110 and using the left/right arrows 1104/1106. The "Go" button (which may also be designated the "OK" button) selects the screen object currently pointed to and triggers whatever event is associated with the object.

Fig. 12 depicts a user interface which includes a media bar and an embedded media viewer in accordance with an embodiment of the present invention. The depiction in Fig. 12 includes eleven features labeled using the letters A, B, C, D, E, F, G, H, I, J, and K.

As described below, the features may (or may not) be selectable. Preferably, selection is accomplished using arrow or other buttons on a remote control device. Selection may also be accomplished by other means (mouse pointing devices, trackballs, joysticks, touch screens, voice recognition, and so on). When a feature or object is selected, it may be highlighted or marked in some manner to so indicate its selection. For example, feature labeled G in Fig. 12 is depicted as being highlighted by a "selection rectangle" outlining the feature.

Once a feature is selected, it may be activated. Such activation may be accomplished by pressing an "OK" or similar button on the remote control device. Activation may also be accomplished by other means (clicking a mouse button, etc.).

The feature labeled A in Fig. 12 comprises one of two selectable "more" buttons. The two more buttons point in opposing directions. In this embodiments, the opposing directions are up and down, but in other embodiments the opposing directions may be left and right. When a more button is activated, the current set of reduced-size images will be scrolled to the next set of reduced-size images which are not currently visible in the direction selected. If there are no more reduced-size images in the direction indicated by the more button, then that more button will be hidden (neither visible nor available) in the media bar.

The feature labeled B in Fig. 12 comprises one of a set of selectable reduced-size images. Preferably, these reduced-size images should be of sufficient quality and layout so that they can be recognized by a person with normal vision on an ordinary sized television from about 10 feet away. Preferably, the reduced-size image will provide a good visual indicator about the content of the associated digital content. When the digital content comprises a streaming video clip, then the reduced-size image may frequently (but not necessarily) be a first frame of the streaming video clip.

Each reduced-size image relating to a subject matter may operate as a hyperlink to associated digital content. A reduced-size image may be selected using

techniques as described above. If the reduced-size image is located at an edge (either first or last position of) the media bar, and there is a next image "hidden" beyond the edge, then a logical scroll of the reduced-size images occur so as to reveal that next image.

Once the reduced-size image has been selected, then it may be activated using means as described above. Once activated, the associated digital content will be presented. For example, if the associated digital content comprises a streaming video clip, then the video clip will be loaded into the viewing window for playback. In a preferred embodiment, such playback may be initiated automatically if there is sufficient throughput to maintain the clips required bit rate. If not, the viewer may buffer the video stream automatically. If the video stream has an associated audio stream, then the associated audio stream may be encoded along with the video stream on a same track for purposes of synchronization.

Possibly in some embodiments, the associated digital content may comprise a still image. In that case, when the reduced-size image is activated, then the image will be loaded into an image viewer for display (typically at full-size or at least a size greater than the reduced-size image).

The feature labeled C in Fig. 12 comprises an area to display a caption for content being displayed by the embedded media viewer. In a preferred embodiment, the caption comprises non-selectable text.

The feature labeled D in Fig. 12 comprises a viewing window for displaying content by the embedded media viewer. In a preferred embodiment, the viewing window may display streaming video clips. Preferably, the streaming video clips will be created such that a first frame of the clip provides a good visual indicator about the clip's contents.

The feature labeled E in Fig. 12 comprises an elapsed time indicator for the content being displayed by the embedded media viewer. Such an elaped time indicator would be used to display the amount of elapsed time during play of streaming video by the embedded media viewer.

The feature labeled F in Fig. 12 comprises a selectable fast forward button for the content being displayed by the embedded media viewer. In a preferred

embodiment, activating the fast forward button causes the streaming media clip to be fast forwarded until it either reaches the end of the streaming media clip or until the play button is selected.

The feature labeled G in Fig. 12 comprises a selectable play/pause button. In a preferred embodiment, such a play/pause button may comprise a two-state button. When the streaming media clip is playing in the embedded media viewer, the play/pause button is in a "pause" state where it resembles and represents a pause button (not illustrated in Fig. 12). Activating the play/pause button from pause state causes pausing of the streaming media clip and further causes the play/pause button to change to a "play" state where it resembles and represents a play button (as illustrated in Fig. 12). Activating the play/pause button from play state causes playing of the streaming media clip and further causes the play/pause button to change to the "pause" state

The feature labeled H in Fig. 12 comprises a selectable rewind button. In a preferred embodiment, activating the rewind button causes the streaming media clip to rewind until either the beginning of the clip is reached or until the play button is activated.

The feature labeled I in Fig. 12 comprises an area to display a caption for subject matter depicted in a corresponding reduced-size image. In a preferred embodiment, the caption comprises non-selectable text. In accordance with one embodiment of the present invention, such captions may be optional.

The feature labeled J in Fig. 12 comprises a video icon corresponding to a subject matter. In a preferred embodiment, the video icon is non-selectable and indicates the presence of a streaming video clip associated with the subject matter. Such a streaming video clip may be viewable by way of the viewing window (D) described above.

The feature labeled K in Fig. 12 comprises an audio icon corresponding to a subject matter. In a preferred embodiment, the audio icon is non-selectable and indicates the presence of a streaming audio clip associated with the subject matter. Such audio content may be played on an audio system either integrated with the video system or external to the video system.

Other features not shown in Fig. 12 may also be included. For example, the embedded media viewer may include a progress bar or an elapsed time indicator. Such a bar or indicator displays an indication of the progress of presentation of a media clip.

In accordance with an embodiment of the present invention, if both video and audio icon are present in correspondence to a subject matter, then both a streaming video clip and an associated streaming audio clip may correspond to the subject matter. Such streaming video and associated streaming audio are preferably played together synchronously by the media viewer.

Fig. 13 depicts a user interface which includes a media bar for use with pop-up media viewers in accordance with an embodiment of the present invention. Such an embodiment may be preferable for use on a user interface page where multimedia presentation functionality is desired, but where there is insufficient space available on the page for an embedded viewer. The depiction in Fig. 13 includes six features labeled using the letters A, B, C, D, E, and F.

The feature labeled A in Fig. 13 (like feature A in Fig. 12) comprises one of two selectable "more" buttons. The two more buttons point in opposing directions. In this embodiments, the opposing directions are left and right, but in other embodiments the opposing directions may be up and down. When a more button is activated, the current set of reduced-size images will be scrolled to the next set of reduced-size images which are not currently visible in the direction selected. If there are no more reduced-size images in the direction indicated by the more button, then that more button will be hidden (neither visible nor available) in the media bar.

The feature labeled B in Fig. 13 comprises a selectable text icon corresponding to a subject matter. Each text icon may operate as a hyperlink to associated text content. If there is only text content corresponding to a subject matter (i.e. no video, no audio, and no reduced-size image), then the text icon may be larger such that it overlays the space where the reduced-size image would otherwise be. The text icon may be selected using means as described above. Once the text icon has been selected, then it may be activated using means as described above. Once activated, the text content may be viewable by way of a pop-up text viewer as described below in relation to Fig. 15.

The feature labeled C in Fig. 13 (like feature B in Fig. 12) comprises one of a set of selectable reduced-size images. Preferably, these reduced-size images should be of sufficient quality and layout so that they can be recognized by a person with normal vision on an ordinary sized television from about 10 feet away. Preferably, the reduced-size image will provide a good visual indicator about the content of the associated digital content. When the digital content comprises a streaming video clip, then the reduced-size image may frequently (but not necessarily) be a first frame of the streaming video clip.

Each reduced-size image may operate as a hyperlink to associated digital content relating to a subject matter. A reduced-size image may be selected using means as described above. For purposes of illustration, the reduced-size image to the left of the one labeled C in Fig. 13 is shown to be currently selected by the selection rectangle outlining it. If the reduced-size image is located at an edge (either first or last position of) the media bar, and there is a next image "hidden" beyond the edge, then a logical scroll of the reduced-size images occur so as to reveal that next image.

Once the reduced-size image has been selected, then it may be activated using means as described above. Once activated, the associated digital content will be presented. For example, if the associated digital content comprises a streaming video clip, then the video clip will be loaded into the viewing window for playback. In a preferred embodiment, such playback may be initiated automatically if there is sufficient throughput to maintain the clips required bit rate. If not, the viewer may buffer the video stream automatically.

Possibly in some embodiments, the associated digital content may comprise a still image. In that case, when the reduced-size image is activated, then the image will be loaded into an image viewer for display (typically at full-size or at least a size greater than the reduced-size image).

The feature labeled D in Fig. 13 comprises an audio icon corresponding to a subject matter. In a preferred embodiment, the audio icon is non-selectable and indicates the presence of a streaming audio clip associated with the subject matter. The audio clip does not have to be related to video content. Such audio content may be played on an audio system either integrated with the video system or external to the video system.

The feature labeled E in Fig. 13 comprises a video icon corresponding to a subject matter. In a preferred embodiment, the video icon is non-selectable and indicates the presence of a streaming video clip associated with the subject matter. The video clip may or may not have an associated audio clip. If there is an associated audio clip, the it is preferably provided on a same track as the video clip for synchronization purposes. Such a streaming video clip may be viewable by way of a pop-up media viewer as described below in relation to Fig. 14.

In one embodiment, if both video and audio icon are present in correspondence to a subject matter, then both a streaming video clip and an associated streaming audio clip may correspond to the subject matter. Such streaming video and associated streaming audio are preferably played together synchronously by the media viewer.

The feature labeled F in Fig. 13 comprises a caption (or headline) relating to the subject matter of a selected reduced-size image or a selected text icon. The caption is displayed upon selection (not activation) of the reduced-size image or text icon, and the caption changes as the selected image or icon changes. In accordance with one embodiment of the present invention, such captions may be optional.

Fig. 14 depicts a pop-up media viewer overlayed over a screen in accordance with an embodiment of the present invention. The depiction in Fig. 14 includes ten features labeled using the letters A, B, C, D, E, F, G, H, I, and J.

The feature labeled A in Fig. 14 comprises an area to display a caption for content being displayed by the pop-up media viewer. In a preferred embodiment, the caption comprises non-selectable text.

The feature labeled B in Fig. 14 comprises a pop-up frame. The pop-up frame delimits the window for the pop-up media viewer.

The feature labeled C in Fig. 14 comprises an elapsed time indicator for the content being displayed by the pop-up media viewer. Such an elaped time indicator would be used to display the amount of elapsed time during play of streaming video by the pop-up media viewer.

The feature labeled D in Fig. 14 comprises a selectable "done" button. Activating the done button causes the pop-up media viewer to be dismissed (go away), returning to the screen or page from which the pop-up media viewer was spawned.

The feature labeled E in Fig. 14 comprises comprises an area to display a text or an image. In a preferred embodiment, the text or image is non-selectable and is used for purposes of brand marketing of the content provider or other business entity.

The feature labeled F in Fig. 14 comprises a selectable fast forward button for the content being displayed by the pop-up media viewer. In a preferred embodiment, activating the fast forward button causes the streaming media clip to be fast forwarded until it either reaches the end of the streaming media clip or until the play button is selected.

The feature labeled G in Fig. 14 comprises a selectable play/pause button. In a preferred embodiment, such a play/pause button may comprise a two-state button. When the streaming media clip is playing in the pop-up media viewer, the play/pause button is in a "pause" state where it resembles and represents a pause button (not illustrated in Fig. 14). Activating the play/pause button from pause state causes pausing of the streaming media clip and further causes the play/pause button to change to a "play" state where it resembles and represents a play button (as illustrated in Fig. 14). Activating the play/pause button from play state causes playing of the streaming media clip and further causes the play/pause button to change to the "pause" state

The feature labeled H in Fig. 14 comprises a selectable rewind button. In a preferred embodiment, activating the rewind button causes the streaming media clip to rewind until either the beginning of the clip is reached or until the play button is activated.

The feature labeled I in Fig. 14 comprises a viewing window for displaying content by the pop-up media viewer. In a preferred embodiment, the viewing window may display streaming video clips. Preferably, the streaming video clips will be created such that a first frame of the clip provides a good visual indicator about the clip's contents.

The feature labeled J in Fig. 14 comprises a translucent background overlay which is layed over the screen or page from which the pop-up media viewer was spawned. The translucent background overlay serves to de-emphasize the screen or page from which the pop-up media viewer was spawned and to emphasize the pop-up media viewer. In a preferred embodiment, the transparency attribute of the translucent background overlay may be set at 65% or thereabout (say from 50% to 80%).

Other features not shown in Fig. 14 may also be included. For example, the pop-up media viewer may include a progress bar or an elapsed time indicator. Such a bar or indicator displays an indication of the progress of presentation of a media clip.

In accordance with another embodiment of the present invention, instead of a pop-up media viewer overlaying the page as shown in Fig. 14, an alternate media viewer may replace or cover the whole page. Such an alternate embodiment would provide a larger viewing area to present the media streams.

Fig. 15 depicts a pop-up text viewer overlayed over a screen in accordance with an embodiment of the present invention. The depiction in Fig. 15 includes three features labeled using the letters A, B, and C.

The feature labeled A in Fig. 15 comprises a text viewing window for displaying text content. When there is more than one page of text content to be displayed, a scrolling capability is used to move between pages. Preferably, a scrolling capability of a browser portion of the user interface may be used to provide the scrolling capability of the text viewing window.

The feature labeled B in Fig. 15 comprises a translucent background overlay which is layed over the screen or page from which the pop-up text viewer was spawned. The translucent background overlay serves to de-emphasize the screen or page from which the pop-up text viewer was spawned and to emphasize the pop-up text viewer. In a preferred embodiment, the transparency attribute of the translucent background overlay may be set at 65% or thereabout (say from 50% to 80%).

The feature labeled C in Fig. 15 comprises a selectable "done" button. Activating the done button causes the pop-up text viewer to be dismissed (go away), returning to the screen or page from which the pop-up text viewer was spawned.

In a preferred embodiment of the present invention, a media bar is designed for use in providing news stories. Such application of a media bar is illustrated in Figs. 16-19. Fig. 16 depicts a media bar used to provide general news as part of a general news screen. Fig. 17 depicts a media bar used to provide sports news as part of a sports news screen. Fig. 18 depicts a media bar used to provide financial news as part of a financial ("money") news screen. Fig. 19 depicts a media bar used to provide entertainment news as part of an entertainment ("scene") news screen. Note that the media bar illustrated in these figures uses a video icon which overlaps the reduced-size image, and audio and text icons which do not.

In another aspect of the present invention, latencies or delays in accessing digital content by way of the media bar may be reduced. Such reduction of latencies may be accomplished by various caching schemes. For example, the reduced-size image and related captions may be transmitted ahead of time and cached (stored) at a set top box. Such caching would speed up access to the media bar itself. As a further example, the streaming video, streaming audio, and/or text content may be cached (stored) at a headend of a cable distribution system. Such caching would speed up access to the streaming video, streaming audio, and/or text content available via the media bar.

In a further aspect of the present invention, the news stories made available via the media bar may be updated automatically. Such automatic updating may be done periodically (for example, daily or hourly) or done as news is reported by the press.

While specific embodiments and applications of the present invention have been illustrated and described, it is to be understood that the invention is not limited to the precise configuration and components disclosed herein. Various modifications, changes, and variations which will be apparent to those skilled in the art may be made in the arrangement, operation, and details of the methods and systems of the present invention disclosed herein without departing from the spirit and scope of the invention.

WHAT IS CLAIMED IS:

1. A user interface to an Internet-enabled television system, the user interface comprising:

a media bar for integrated access to a plurality of types of digital content;

a plurality of selectable reduced-sized displays within the media bar, each selectable reduced-size displays operating as a link to corresponding digital content;

a plurality of media type icons for use in correspondence with the selectable reduced-size displays, each media type icon indicating availability of an associated media type among the corresponding digital content; and

a media viewer which upon activation of a selectable reduced-size display presents the corresponding digital content,

wherein the plurality of media type icons include a streaming video icon and a streaming audio icon.

2. The user interface of claim 1, wherein the media viewer comprises an embedded media viewer which is present along with the media bar in a same screen.

3. The user interface of claim 1, wherein the media viewer comprise a pop-up media viewer which is viewable in a window that pops up and partially overlays a screen with the media bar.

4. The user interface of claim 3, wherein a translucent overlay is used to de-emphasize the screen behind the pop-up media viewer.

5. The user interface of claim 1, wherein the media type icons partially overlay the reduced-size displays.

6. The user interface of claim 1, wherein the plurality of media type icons further include a selectable text icon.

7. The user interface of claim 6, wherein activation of the selectable text icon launches a second media viewer which comprises a pop-up text viewer.

8. The user interface of claim 1, further comprising:

a L configuration of controls to television and Internet content.

9. The user interface of claim 1, further comprising:

a text caption corresponding to each selectable reduced-size display.

10. The user interface of claim 9, wherein each selectable reduced-size display corresponds to a news story.

11. The user interface of claim 10, wherein the media bar is used to provide news stories relating to a particular category of news from a group of categories that includes general news, sports, finance, and entertainment.

12. The user interface of claim 11, wherein the news stories provided by the media bar are automatically updated.

143. The user interface of claim 12, wherein the automatic updating occurs periodically.

154. The user interface of claim 1, wherein reduced-size images for the reduced-size displays are cached at a set top unit providing the user interface.

165. The user interface of claim 1, wherein streaming media content made available via the media bar is cached at a headend of a cable distribution system.

176. A user interface to an Internet-enabled television system, the user interface comprising:

a display area for displaying the multimedia content;

a group of primary controls adjacent to the display area, where the group of primary controls is aligned along a first direction of the display area;

a plurality of groups of context-sensitive controls adjacent to the display area, where each group of context-sensitive controls is aligned along a second direction of the display area;

a first pair of arrows of an input device for controlling navigation among the primary controls;

a second pair of arrows on the input device for controlling navigation among the context-sensitive controls, where switching from navigation among the primary controls to navigation among the context-sensitive controls occurs automatically upon switching from use of the first pair of arrows to use of the second pair of arrows, and where switching from navigation among the context-sensitive controls to navigation

among the primary controls occurs automatically upon switching from use of the second pair of arrows to use of the first pair of arrows;

a media bar within the display area for integrated access to a plurality of types of digital content;

a plurality of selectable reduced-sized displays within the media bar, each selectable reduced-size displays operating as a link to corresponding digital content;

a plurality of media type icons for use in correspondence with the selectable reduced-size displays, each media type icon indicating availability of an associated media type among the corresponding digital content; and

a media viewer which upon activation of a selectable reduced-size display presents the corresponding digital content.

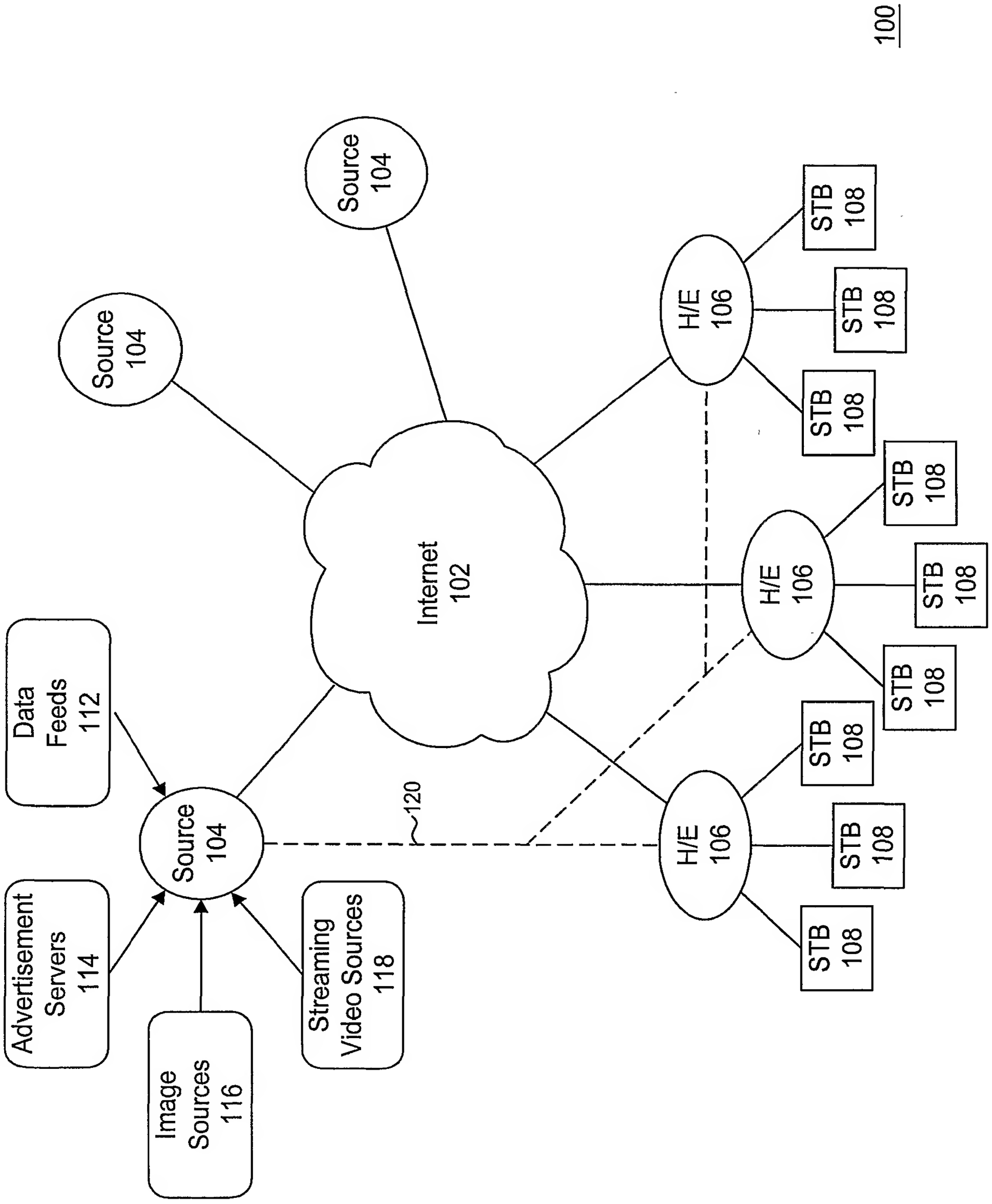
100
Source 104
Source 104
Internet 102
Data Feeds 112
Source 104
120
Advertisement Servers 114
Image Sources 116
Streaming Video Sources 118
H/E 106
H/E 106
H/E 106
H/E 106
STB 108
STB 108
STB 108
STB 108
STB 108
STB 108
STB 108
STB 108
STB 108
STB 108

FIG. 1

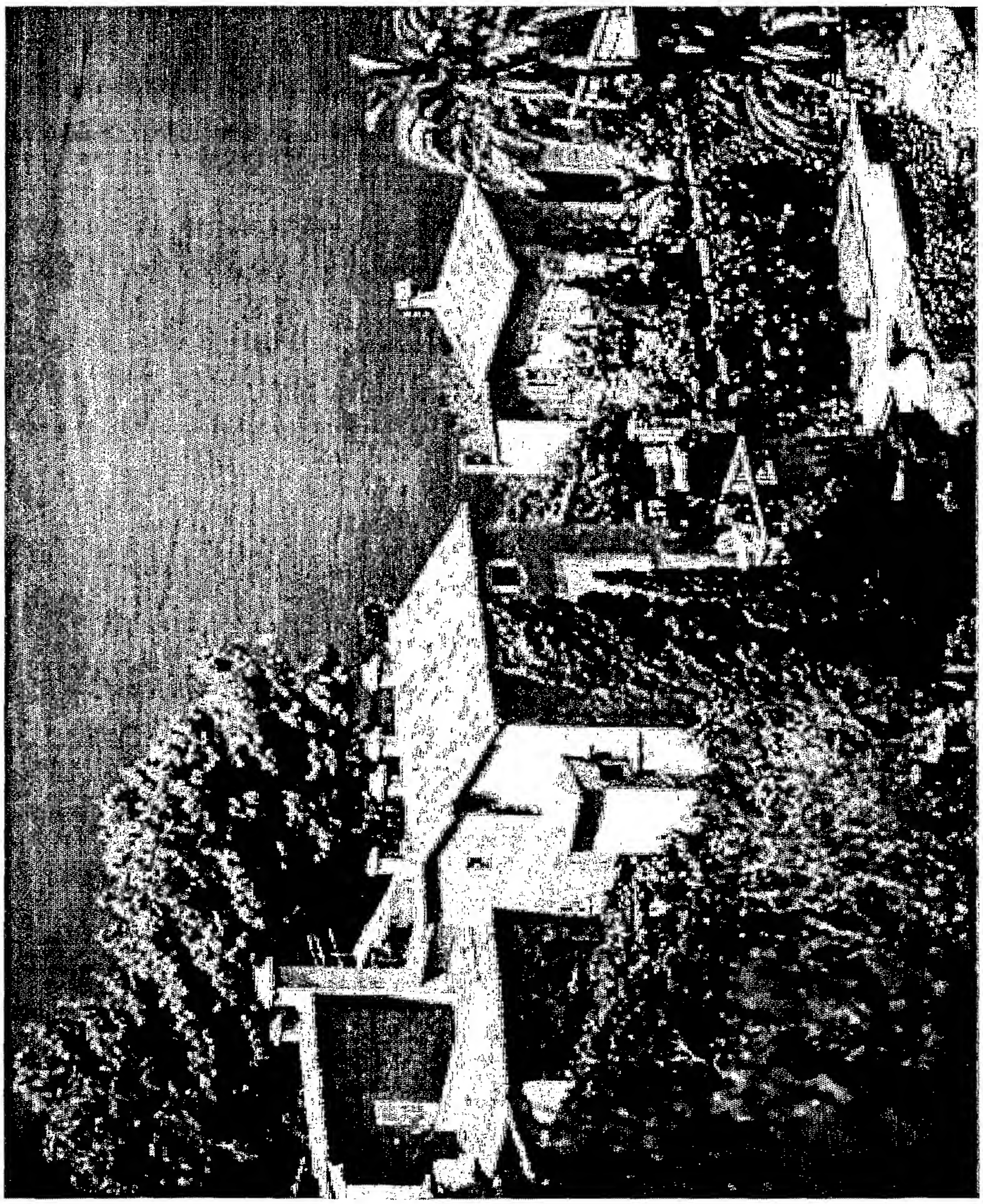

FIG. 2

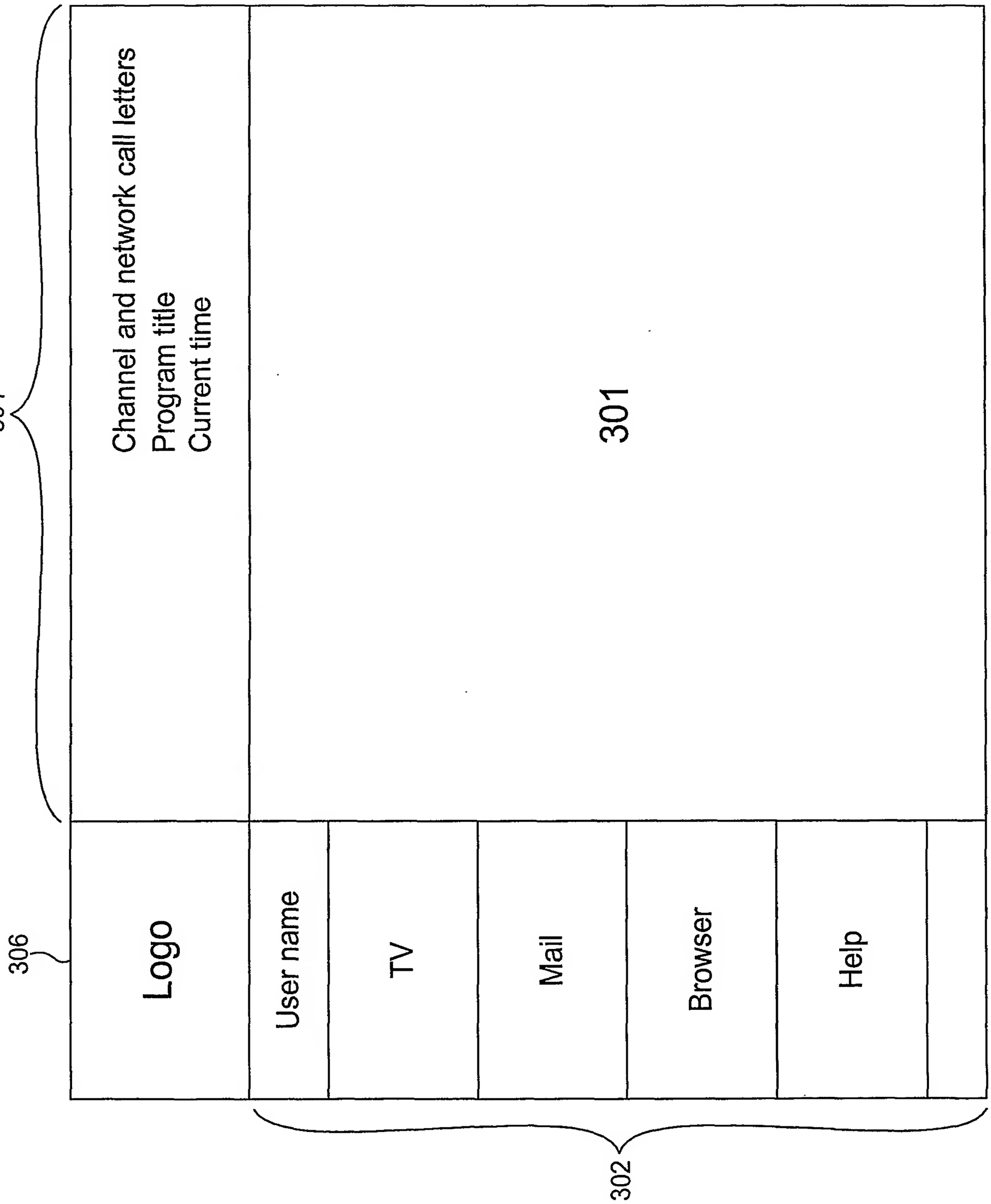
300
304
Channel and network call letters
Program title
Current time
301
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 3

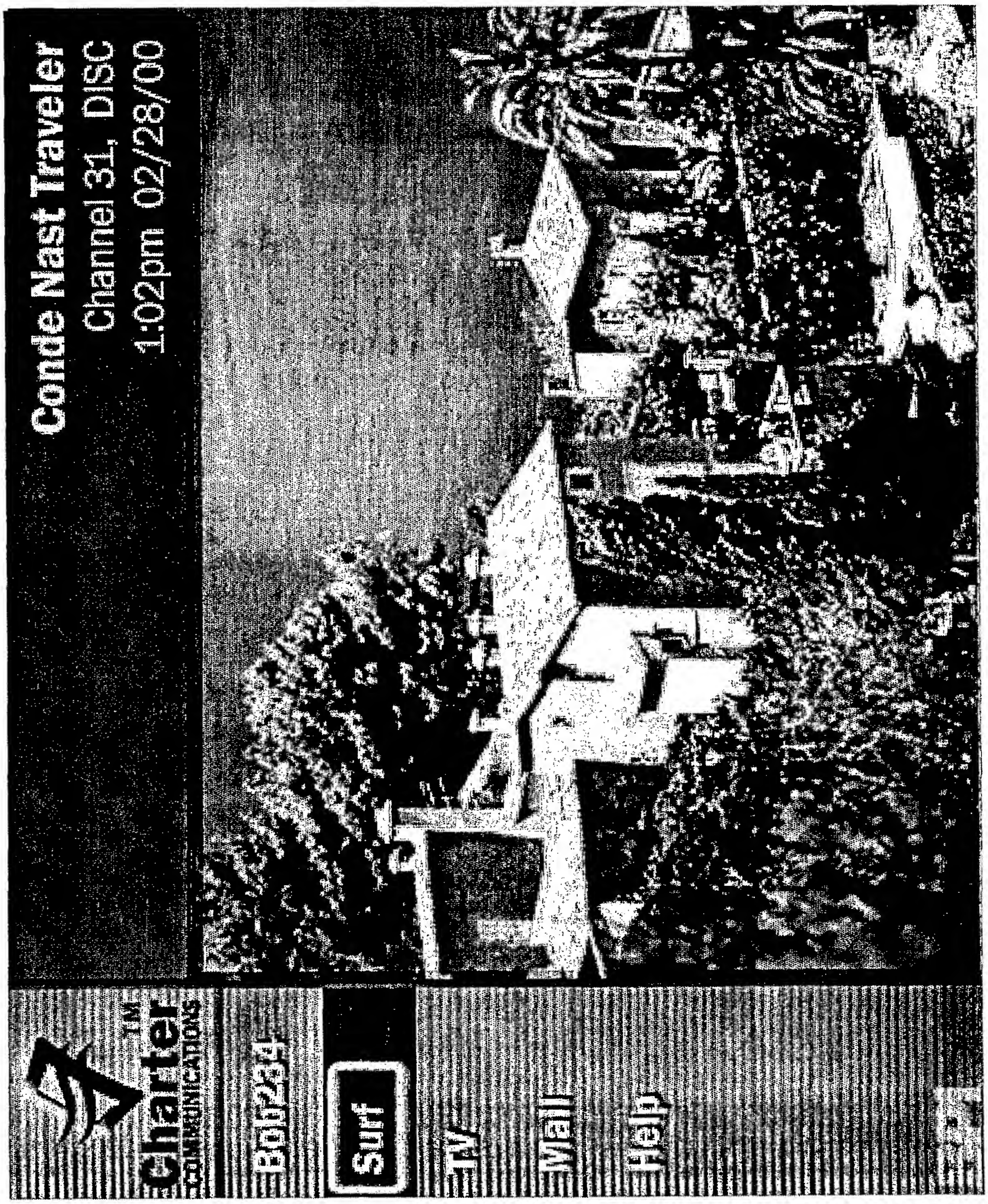
Conde Nast Traveler
Channel 31, DISC
1:02pm 02/28/00
charter COMMUNICATIONS
Bob2344
Surf
TV
Mail
Help

FIG. 4

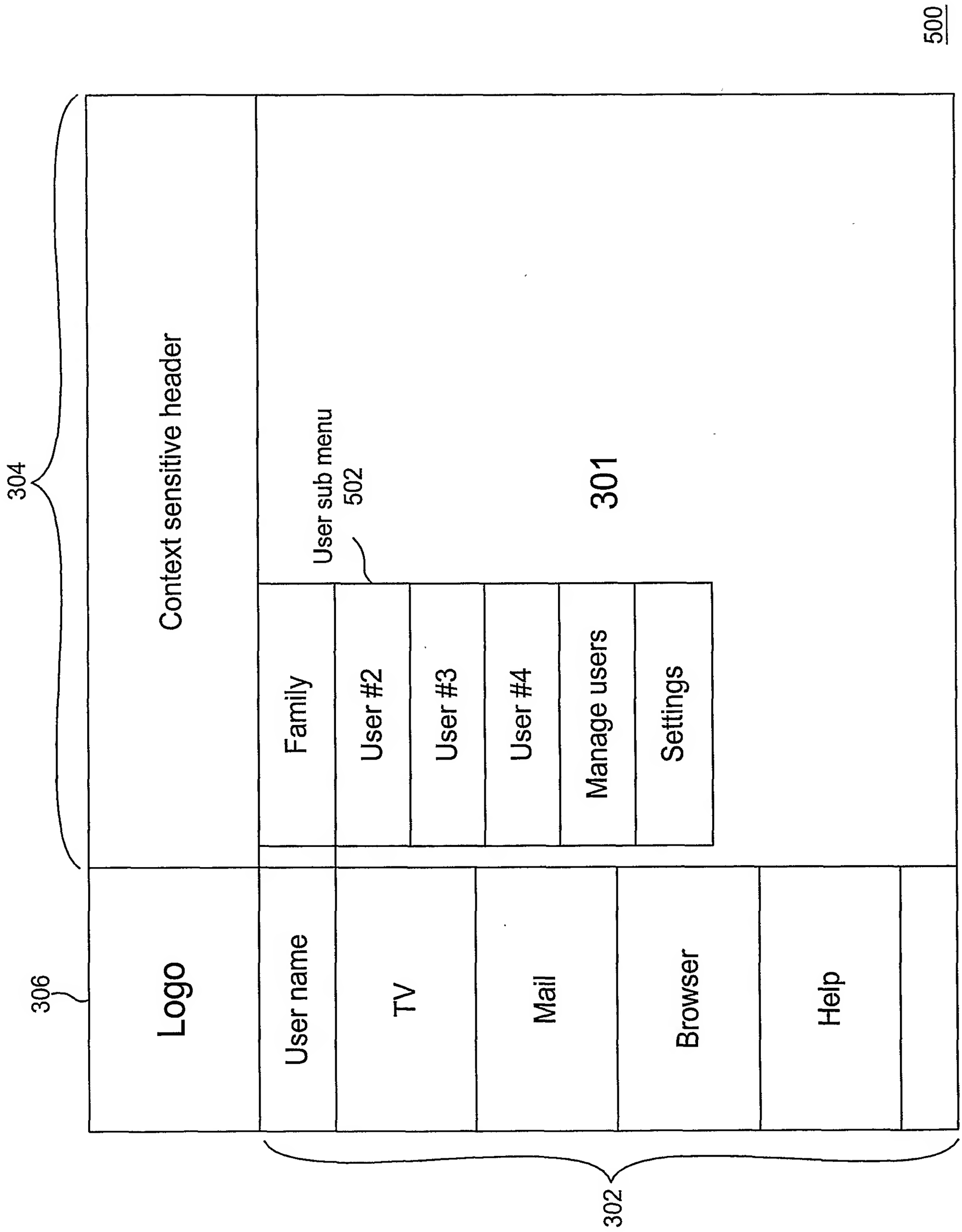
500
304
Context sensitive header
301
User sub menu
502
Family
User #2
User #3
User #4
Manage users
Settings
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 5

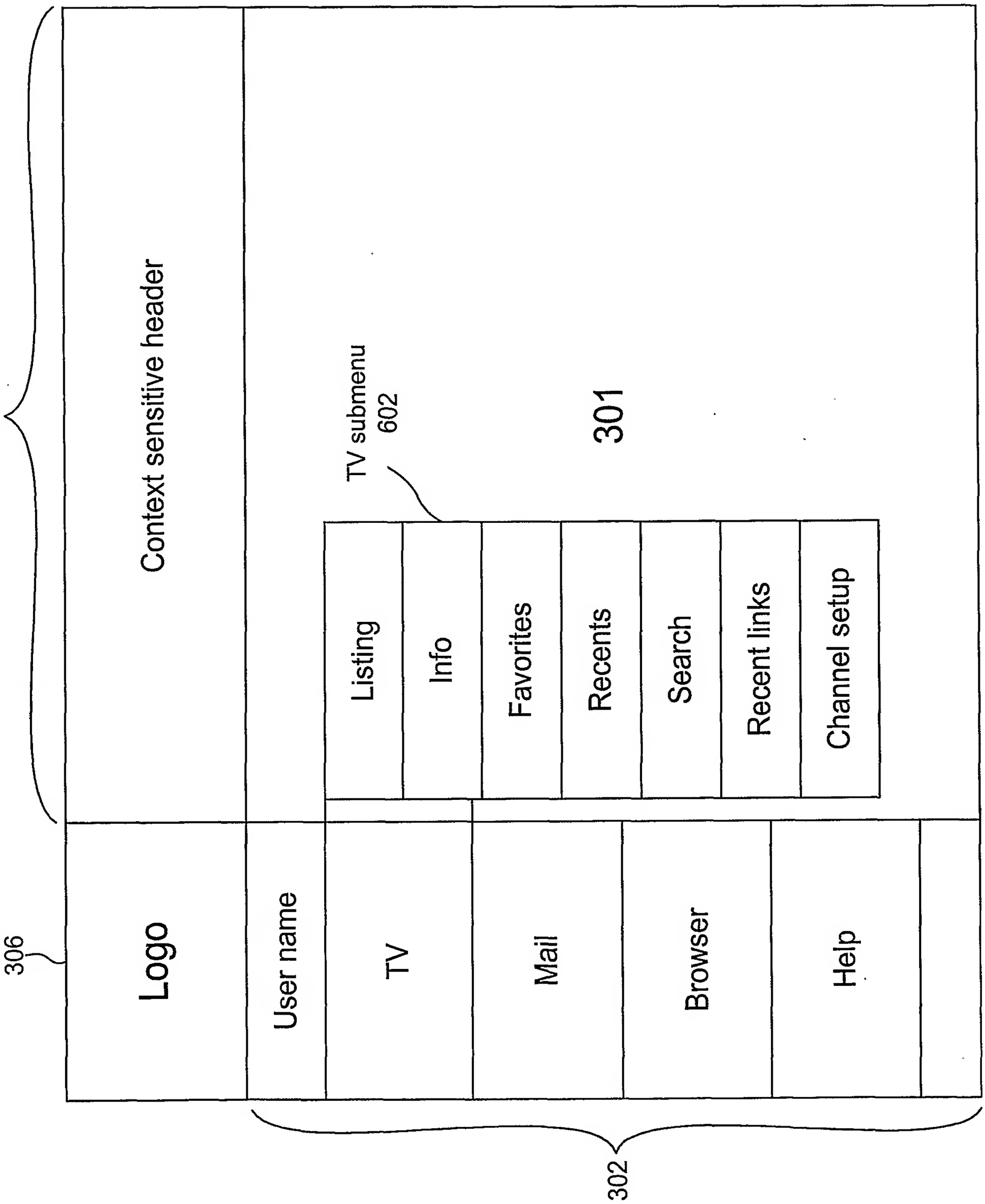
600
304
Context sensitive header
TV submenu
602
301
Listing
Info
Favorites
Recents
Search
Recent links
Channel setup
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 6

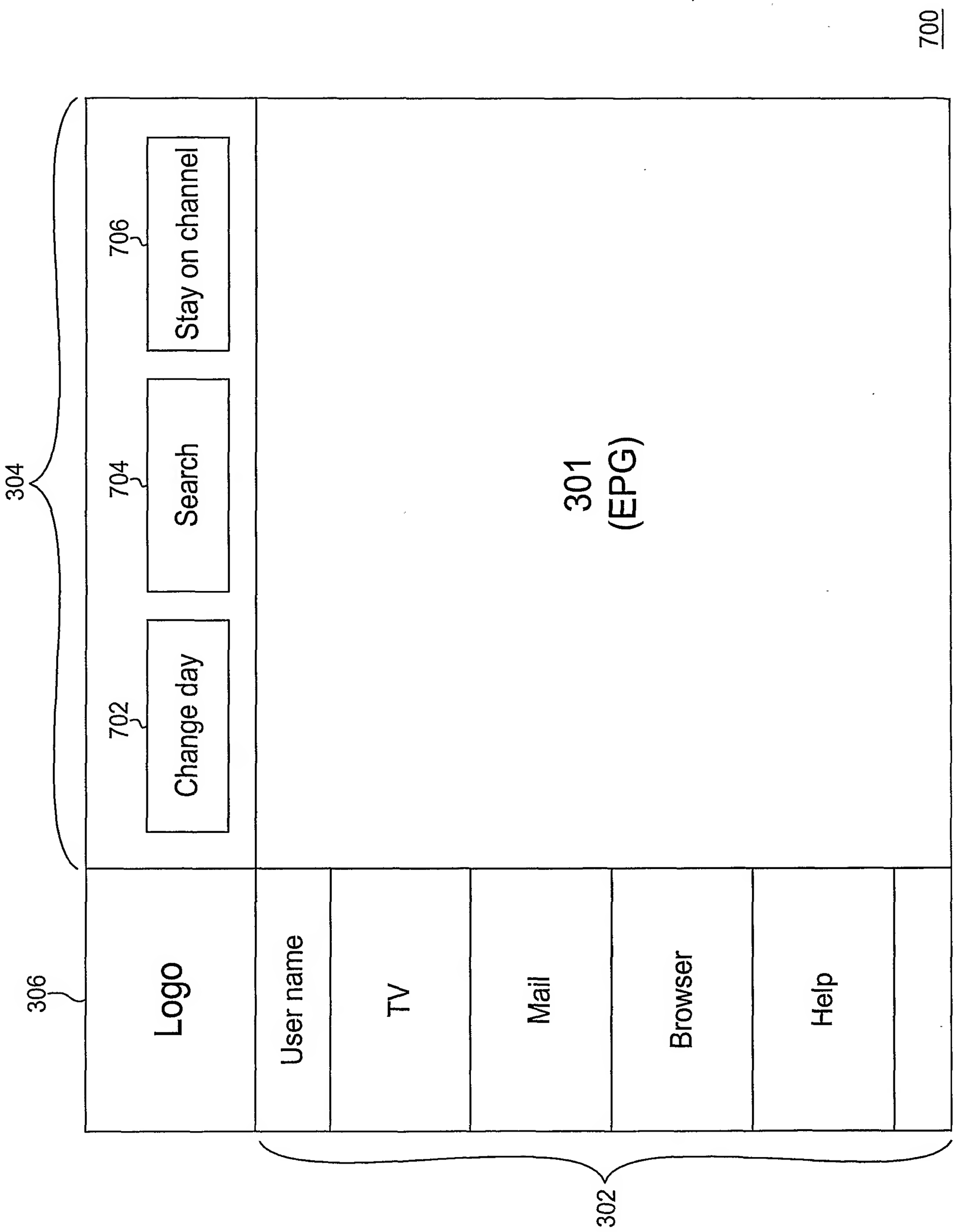
700
304
706
Stay on channel
704
Search
702
Change day
301
(EPG)
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 7

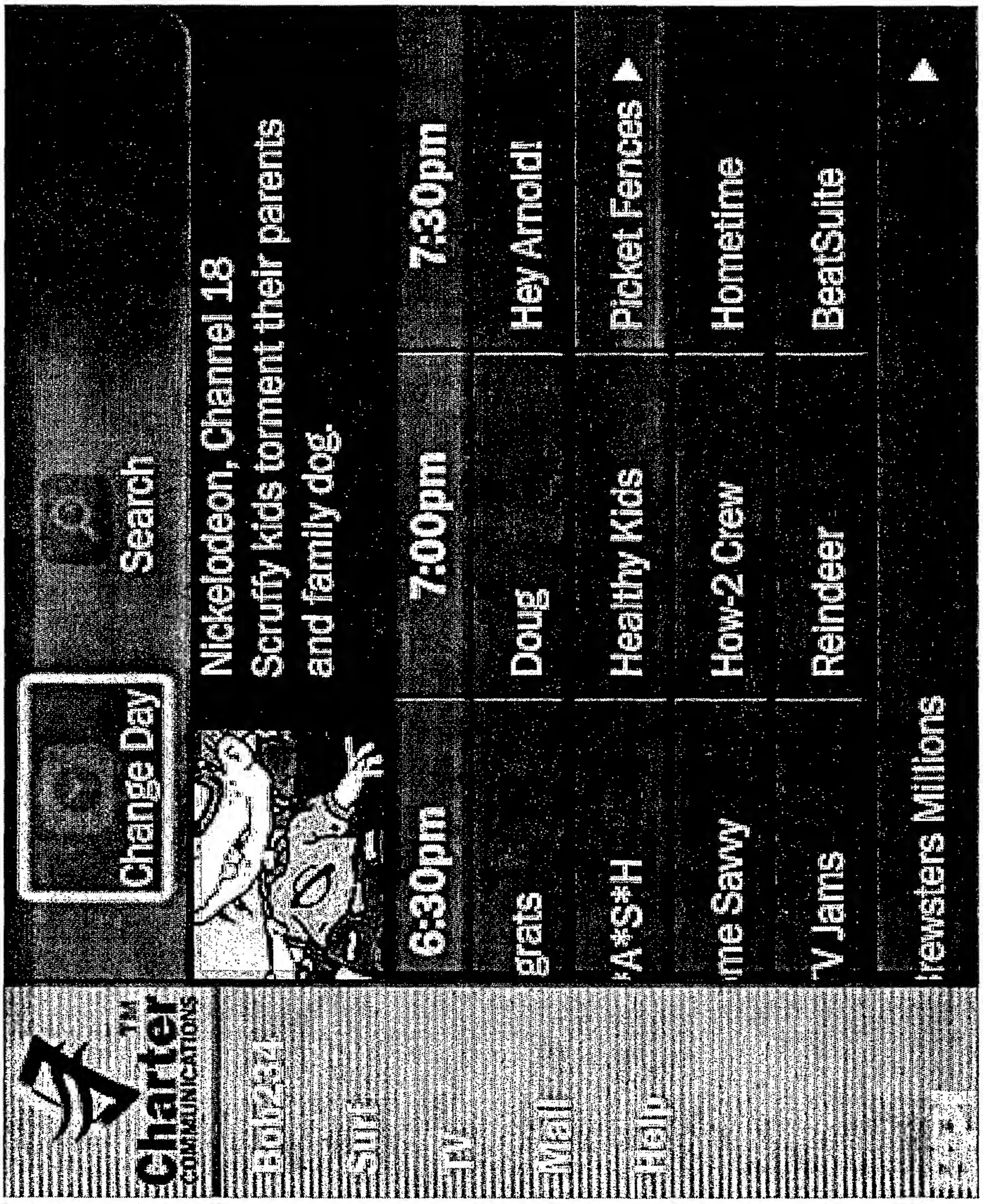
Search
Change Day
Nickelodeon, Channel 18
Scruffy kids torment their parents
and family dog.
6:30pm
7:00pm
7:30pm
Doug
Hey Arnold!
Healthy Kids
Picket Fences
How-2 Crew
Hometime
Reindeer
BeatSuite
Charter COMMUNICATIONS

FIG. 8

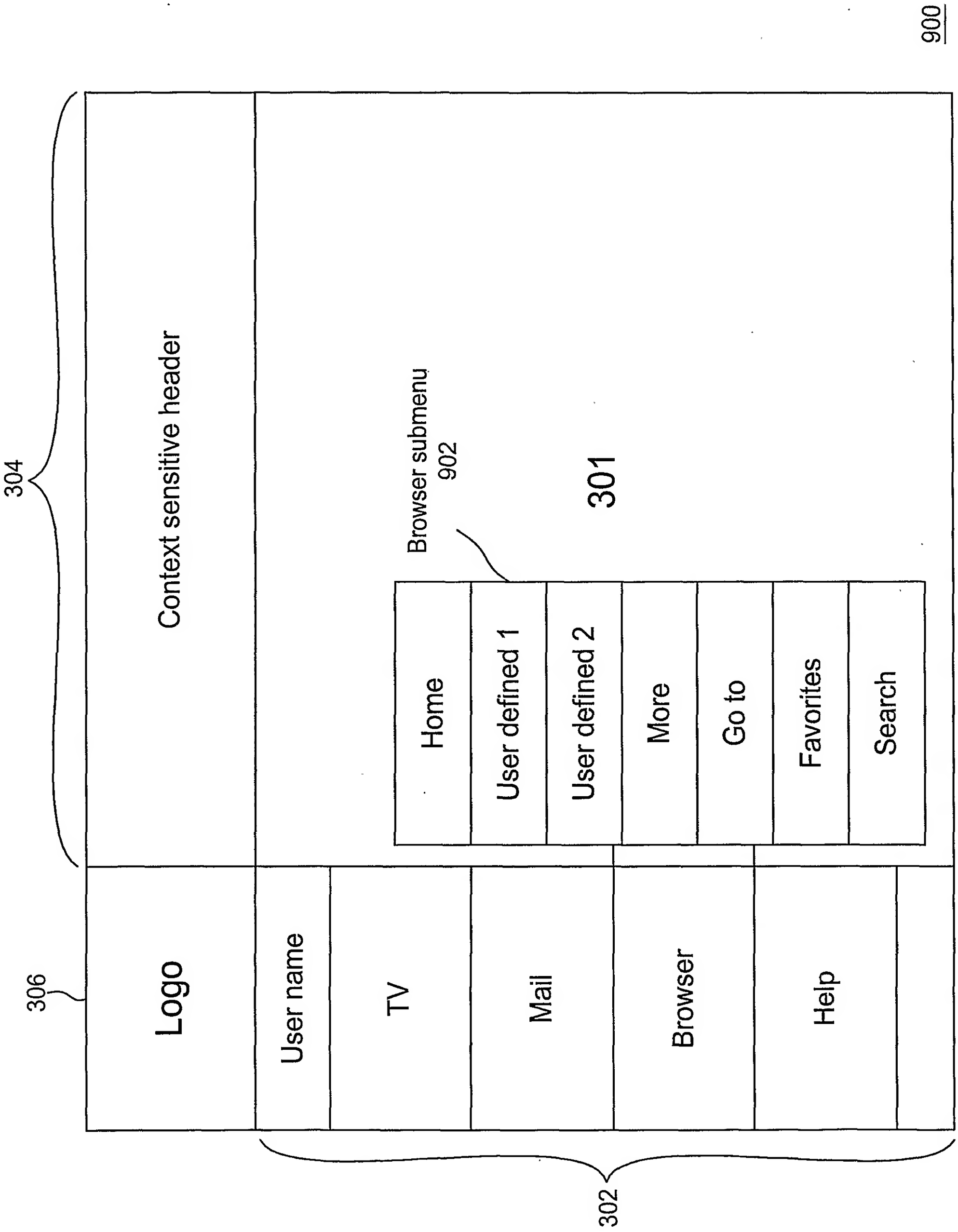
900
304
Context sensitive header
Browser submenu
902
Home
User defined 1
User defined 2
More
Go to
Favorites
Search
301
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 9

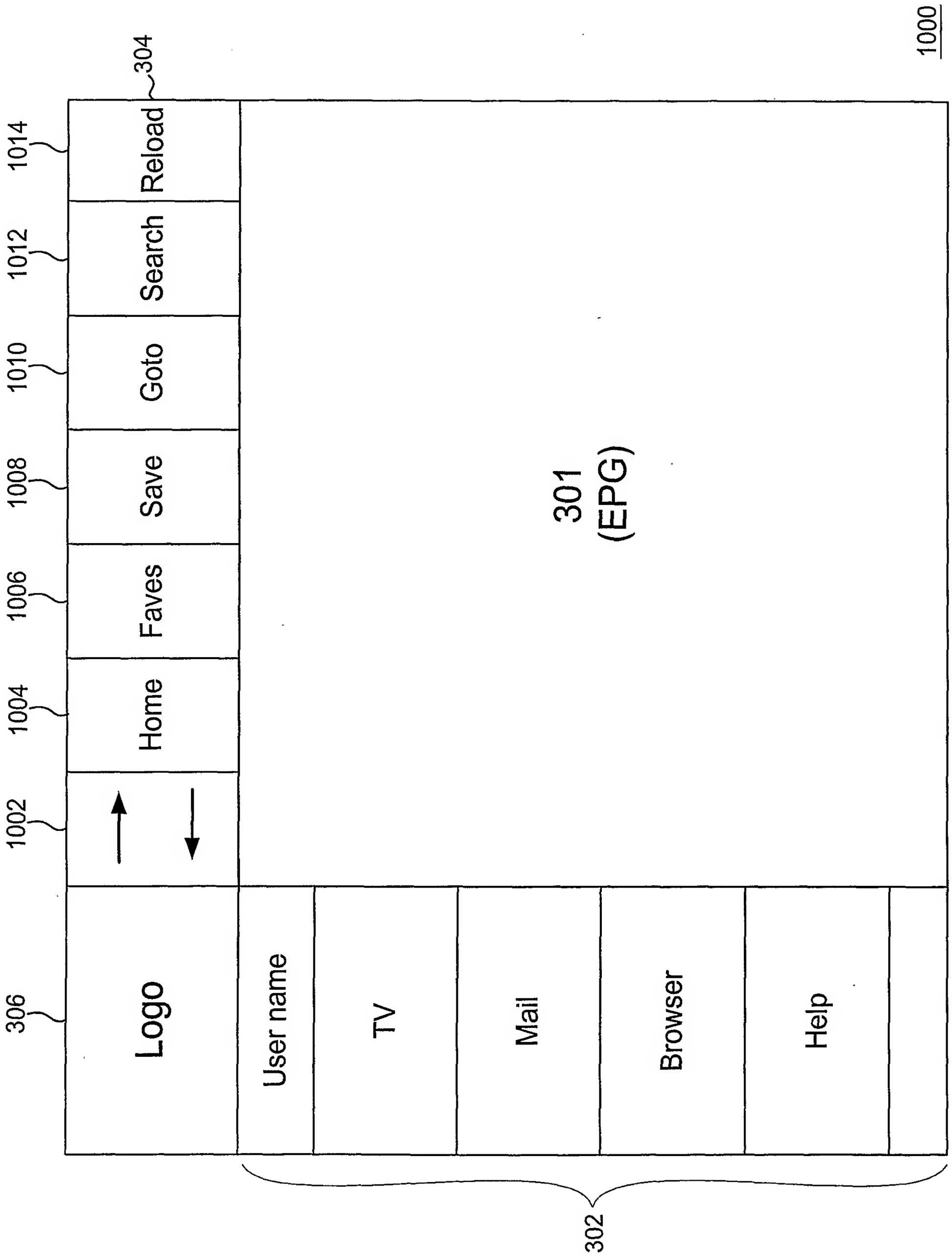
1000
304
Reload
1014
Search
1012
Goto
1010
Save
1008
Faves
1006
Home
1004
1002
301
(EPG)
306
Logo
User name
TV
Mail
Browser
Help
302

FIG. 10

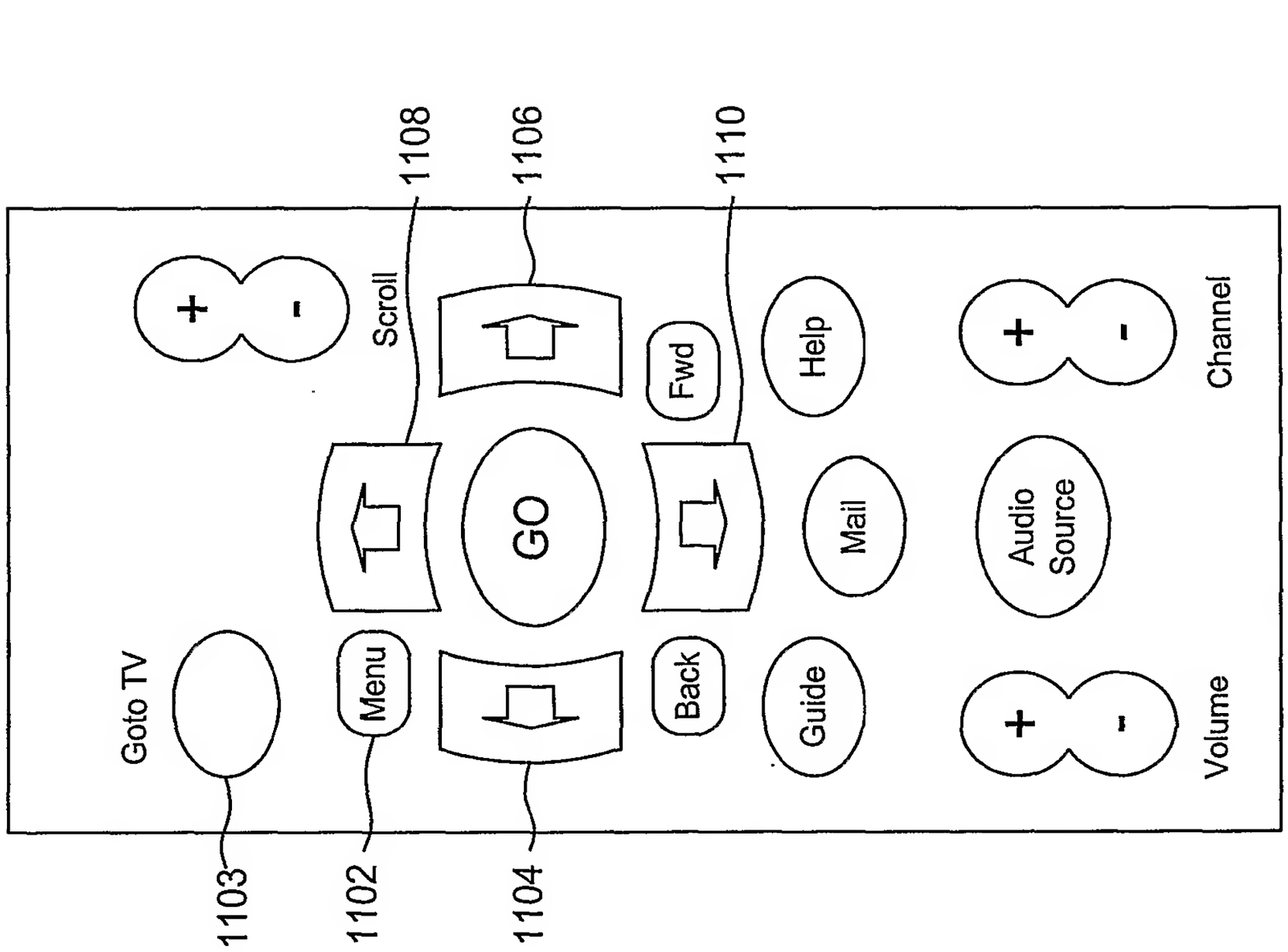
1100
1108
1106
1110
Goto TV
Menu
Scroll
GO
Back
Fwd
Guide
Mail
Help
Audio Source
Volume
Channel
1103
1102
1104

FIG. 11

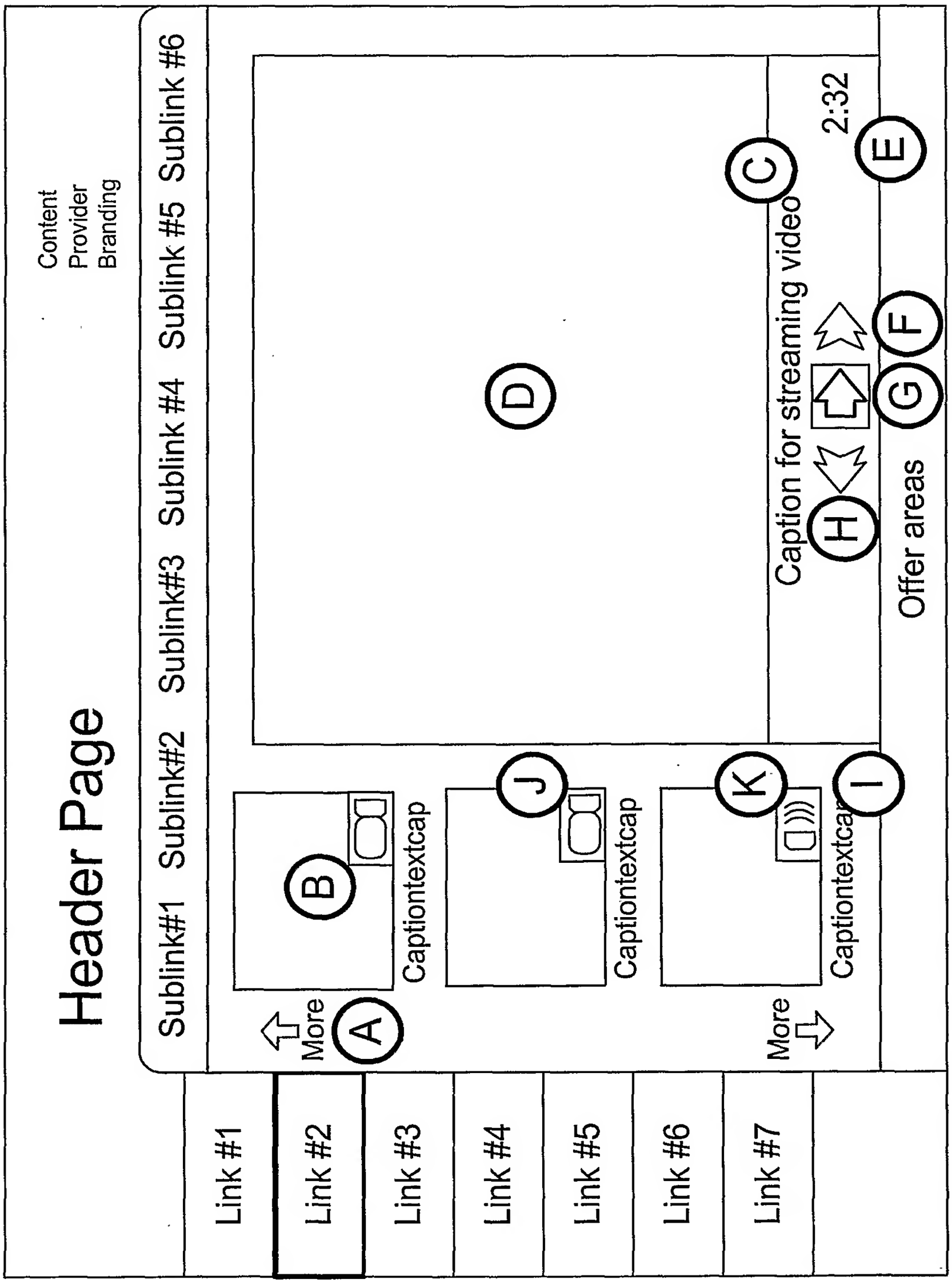
Header Page
Content Provider Branding
Sublink#1
Sublink#2
Sublink#3
Sublink #4
Sublink #5
Sublink #6
More
A
B
Captiontextcap
D
C
2:32
E
F
G
J
Captiontextcap
K
More
Captiontextcap
I
Caption for streaming video
H
Offer areas
Link #1
Link #2
Link #3
Link #4
Link #5
Link #6
Link #7

FIG. 12

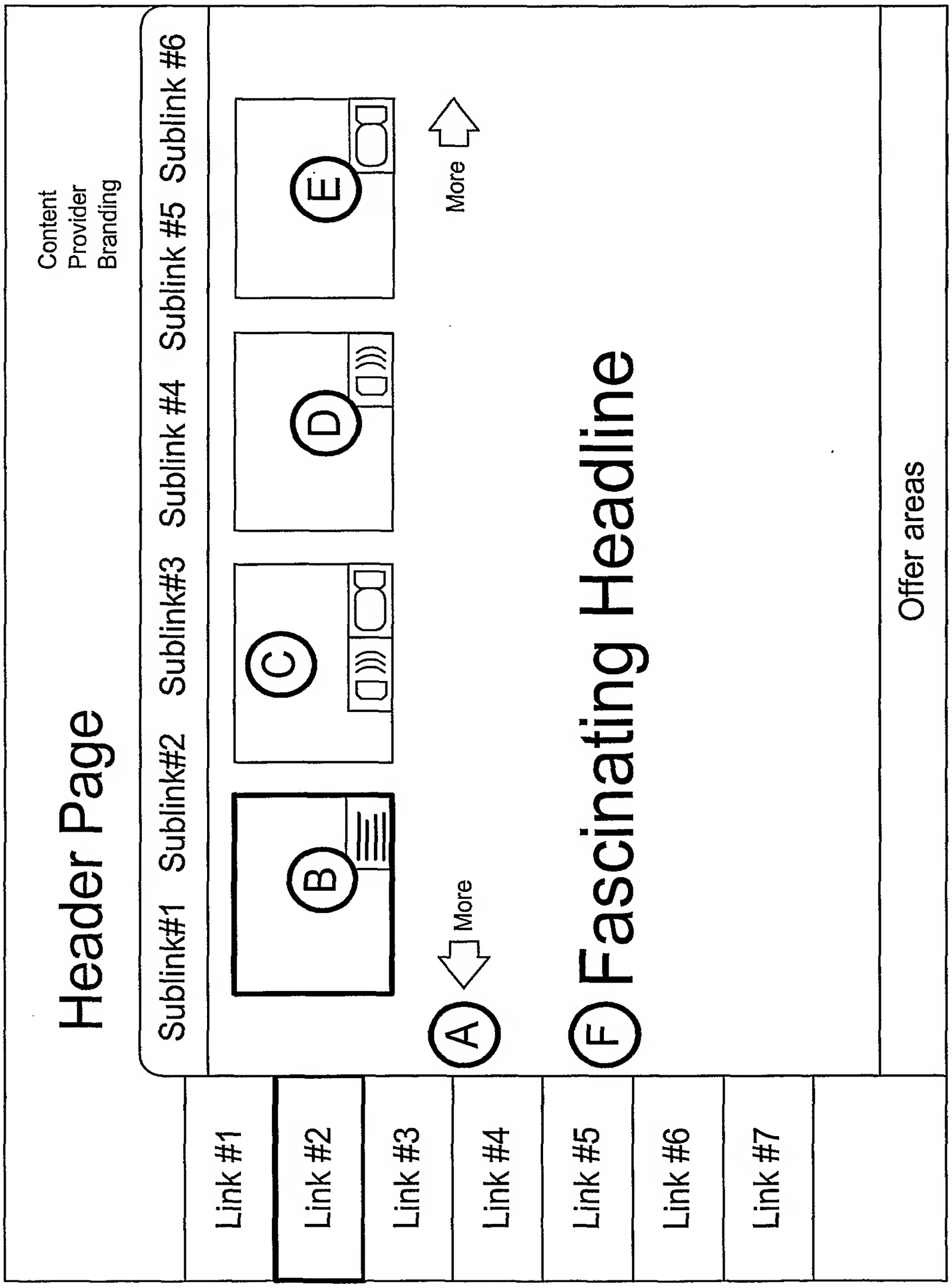
Header Page
Content Provider Branding
Sublink #5 Sublink #6
Sublink#1 Sublink#2 Sublink#3 Sublink #4
E
More
B
C
D
A
More
F Fascinating Headline
Offer areas
Link #1
Link #2
Link #3
Link #4
Link #5
Link #6
Link #7

FIG. 13

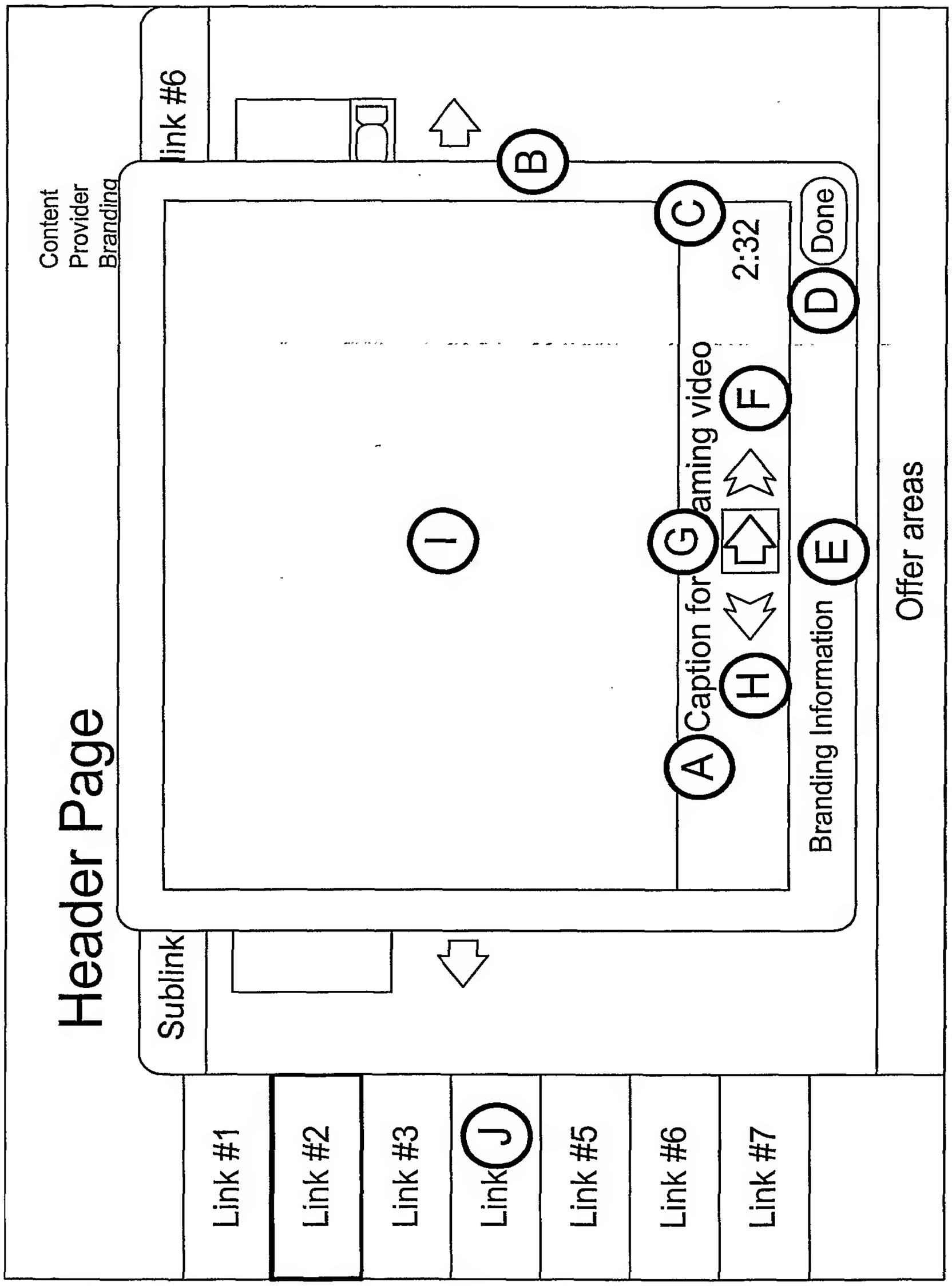
Header Page
Content Provider Branding
link #6
B
C
2:32
Done
D
eo
F
G
aming video
I
A
Caption for
H
E
Branding Information
Offer areas
Sublink
Link #1
Link #2
Link #3
Link J
Link #5
Link #6
Link #7

FIG. 14

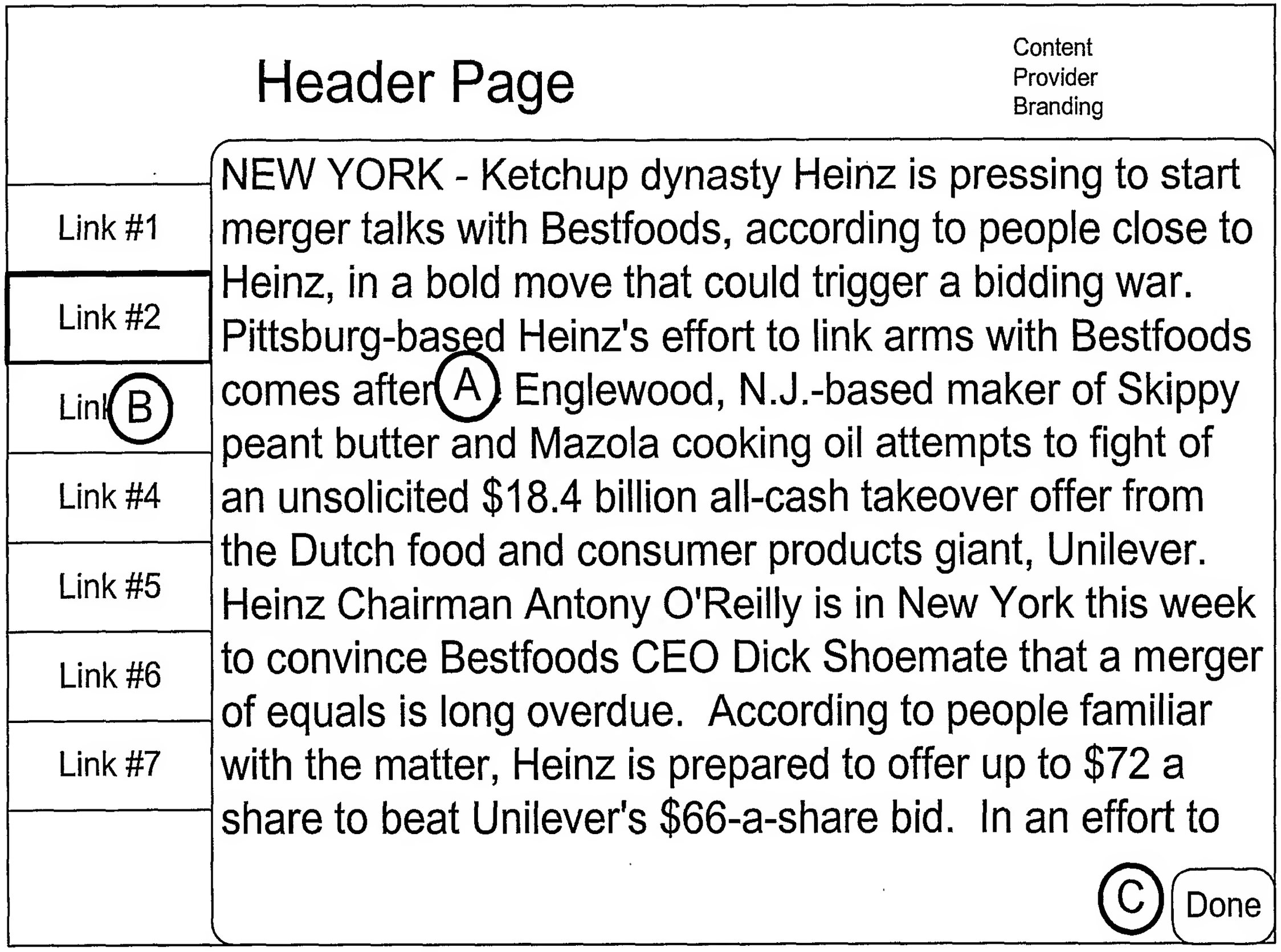
Header Page
Content Provider Branding
Link #1
Link #2
Link #3
Link #4
Link #5
Link #6
Link #7
NEW YORK - Ketchup dynasty Heinz is pressing to start merger talks with Bestfoods, according to people close to Heinz, in a bold move that could trigger a bidding war. Pittsburg-based Heinz's effort to link arms with Bestfoods comes after Englewood, N.J.-based maker of Skippy peant butter and Mazola cooking oil attempts to fight of an unsolicited $18.4 billion all-cash takeover offer from the Dutch food and consumer products giant, Unilever. Heinz Chairman Antony O'Reilly is in New York this week to convince Bestfoods CEO Dick Shoemate that a merger of equals is long overdue. According to people familiar with the matter, Heinz is prepared to offer up to $72 a share to beat Unilever's $66-a-share bid. In an effort to
A
B
C
Done

FIG. 15

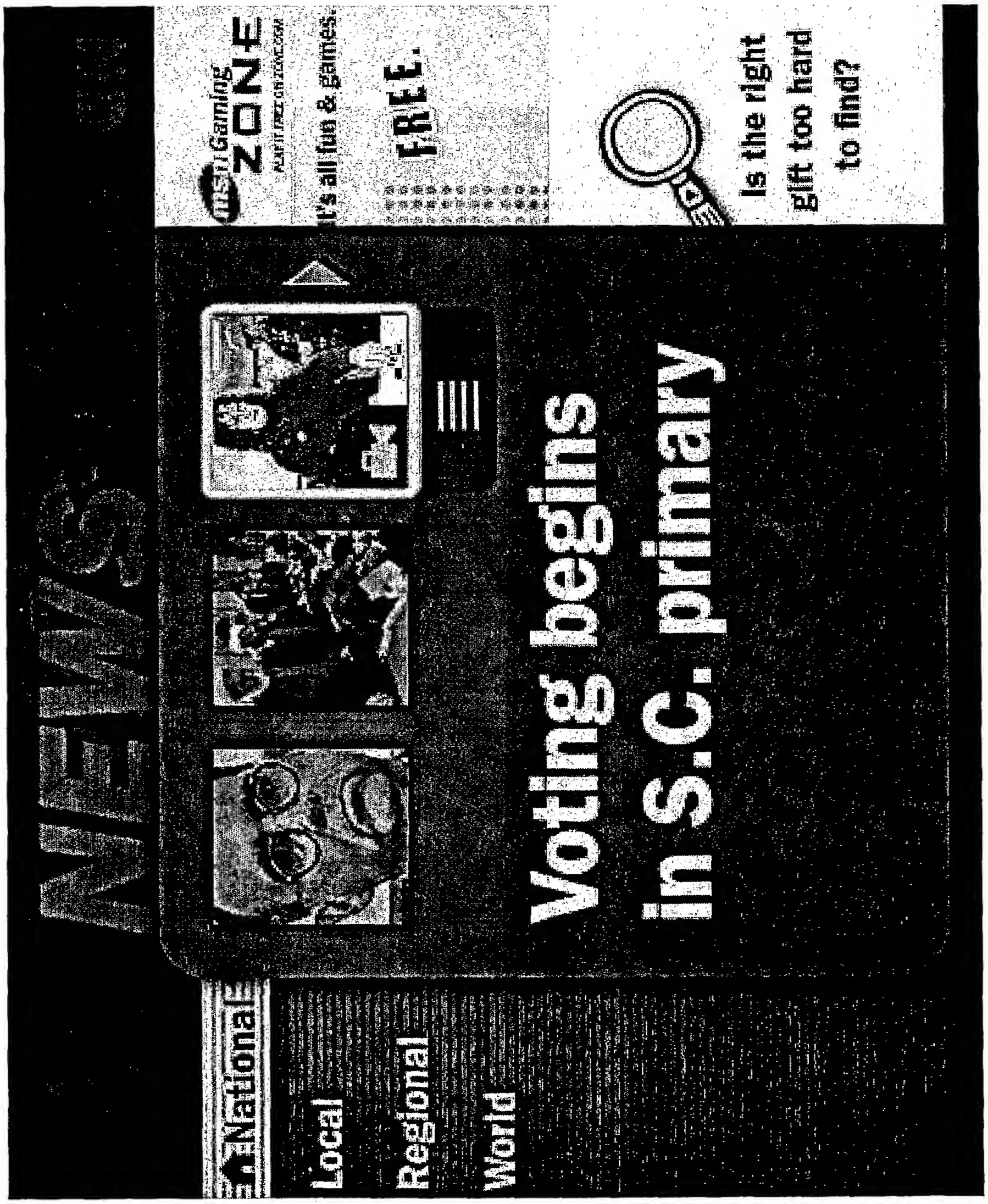
MSNBC
Gaming
ZONE
It's all fun & games.
FREE.
Is the right
gift too hard
to find?
Nothing begins
in s.c. primary
National
Local
Regional
World

FIG. 16

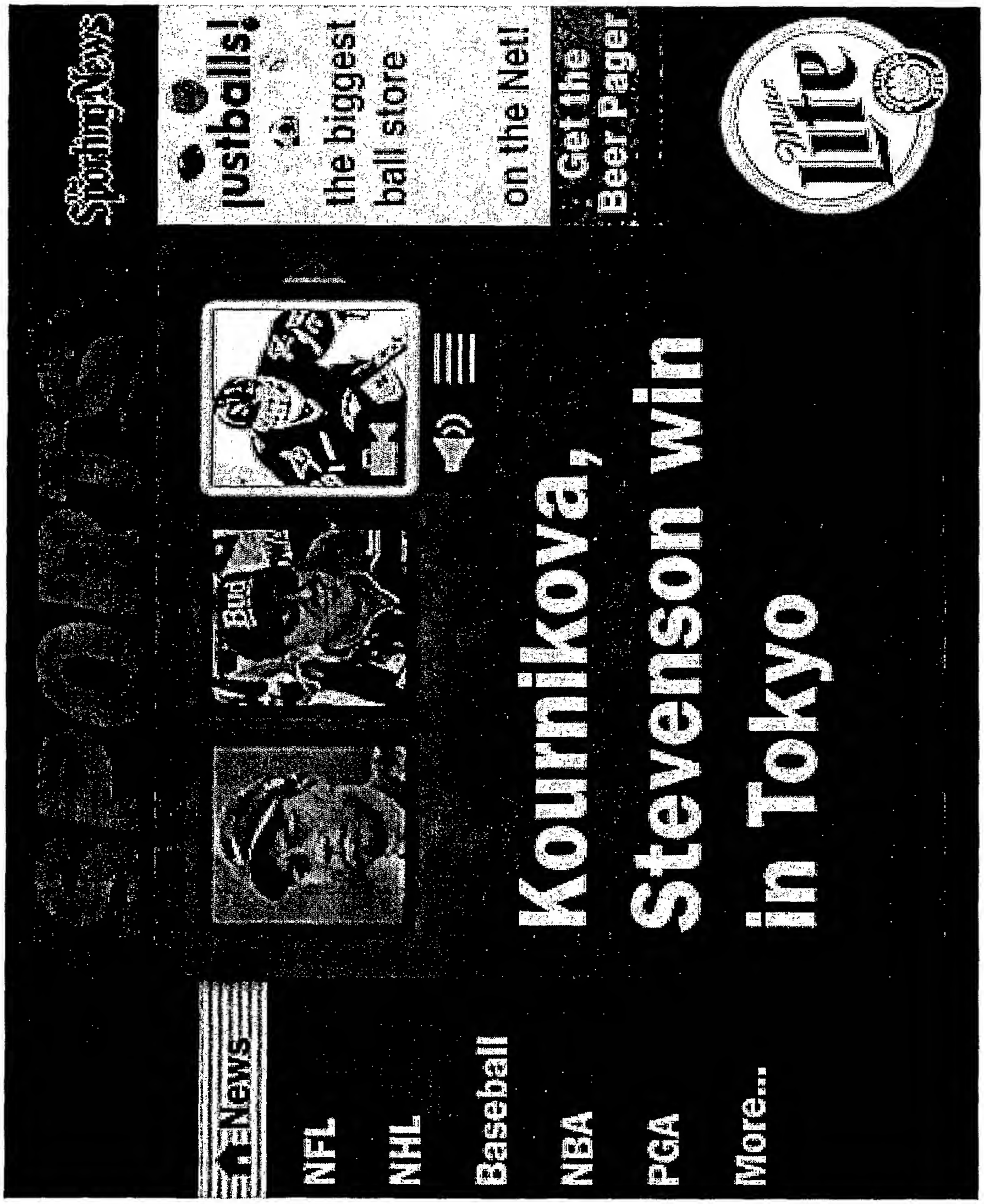
SportingNews
Get the Beer Pager!
the biggest ball store on the Net!
Coors Light
Kournikova, Stevenson win in Tokyo
NFL
NHL
Baseball
NBA
PGA
More...

FIG. 17

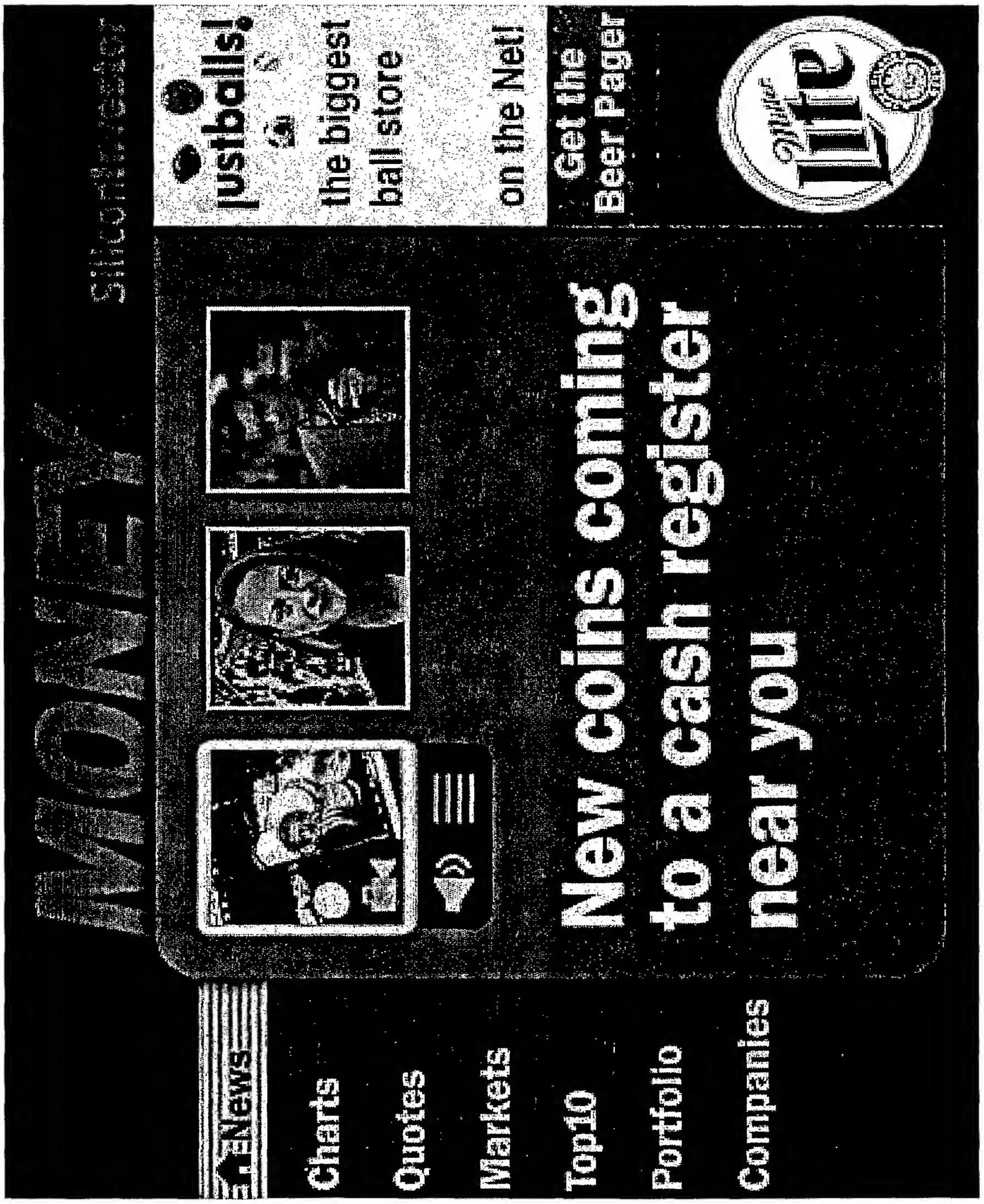
Just balls!
the biggest
ball store
on the Net!
eat the
Beer Page!
New coins coming
to a cash register
near you
Charts
Quotes
Markets
Top10
Portfolio
Companies

FIG. 18

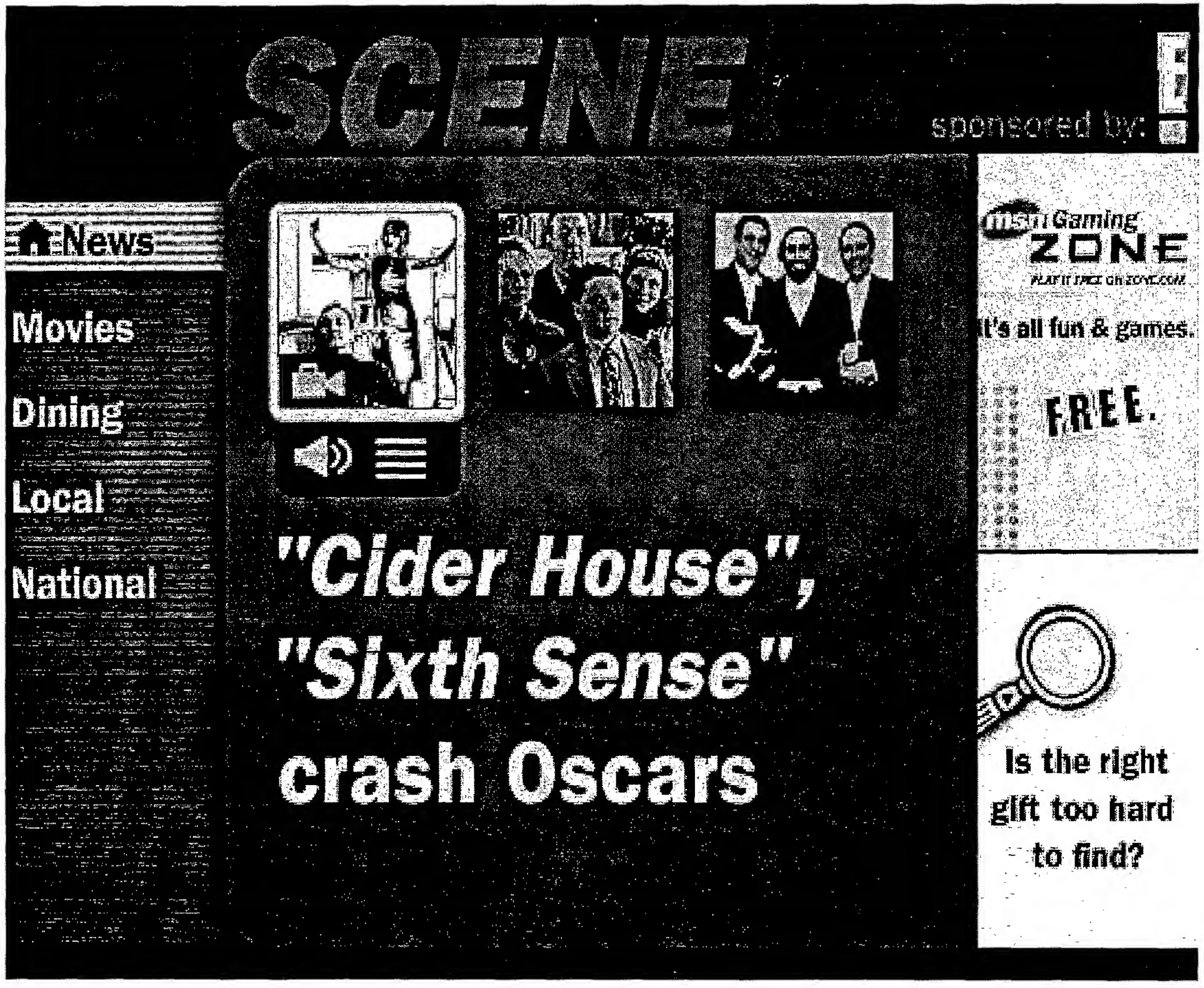
SCENE
sponsored by:
News
Movies
Dining
Local
National
"Cider House",
"Sixth Sense"
crash Oscars
msn Gaming ZONE
PLAY IT FREE ON ZONE.COM
t's all fun & games.
FREE.
Is the right gift too hard to find?

FIG. 19

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/09223

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :HO4N 5/445; G06F 3/00, 13/00
US CL :725/44, 39, 41, 40, 42, 43, 51, 61

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 725/44, 39, 41, 40, 42, 43, 51, 61

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST - EPG, guide, icons, internet, link, URL, video, text, audio

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,002,394 A (SCHEIN et al) 14 December 1999, col. 2 lines 20-65, col. 3, lines 1-20, col. 4, lines 17-67, col. 5, lines 1-67, col. 6, lines 1-67, col, 21, lines 18-67, col. 22, lines 1-63, fig. 16 A, fig. 16 B	1-16
A	US 5,850,218 A (LAJOIE et al) 15 December 1998, ALL	1-16
A	US 5,621,456 A (FLORIN et al) 15 April 1997, ALL	1-16

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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04 JUNE 2001	03 JUL 2001
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